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SUPERFUND TECHNICAL ASSESSMENT AND RESPONSE TEAM
EPA CONTRACT 68-W5-0019

231262

October 08, 1997

Mr. Eric Wilson
U.S. Environmental Protection Agency
Removal Action Branch
2890 Woodbridge Avenue
Edison, NJ 08837

EPA CONTRACT NO: 68-W5-0019
TDD NO: 02-97-05-0009B
DOCUMENT CONTROL NO: START-02-F-01392
SUBJECT: CORNELL-DUBILIE DATA PACKAGE
SOUTH PLAINFIELD, MIDDLESEX COUNTY, NEW JERSEY

Dear Mr. Wilson:

Attached is the data package and validation report submitted by Oxford Environmental, Inc. for the Cornell-Dubilie Electronics site. I have reviewed this data package and the validation report for completeness and accuracy. No problems were found with the laboratory analysis or in the validation report. However, the following pages are missing from the data package:

Inorganic Section:	page 48
Organic Section:	pages 30 (two page 29 are present), 99, 209 and 213

If you have any questions, do not hesitate to call me at (732) 225-6116.

Very Truly yours,

ROY F. WESTON, INC.

Brian D. McGinn

Brian D. McGinn
Project Manager

Enclosure
cc: TDD file

OXFORD ENVIRONMENTAL, INC.

43 Route 46 East, Suite 702, Pine Brook, New Jersey 07058 • 201-244-0600 • fax 201-244-0722

September 4, 1997

Mr. Eric Wilson
On Scene Coordinator
U.S. EPA, Region II
ERRD/RAB (MS-211)
2890 Woodbridge Avenue
Edison, NJ 08837

Re: Validated Sampling and Analysis Results, Able Metro Parking Area, Cornell-Dubilier Site, South Plainfield, New Jersey

Dear Eric:

Attached is the data validation report and lab reports for the sampling and analysis in this area.

As the report shows, all of the data are valid and do not need to be qualified. Therefore, there are no changes to the data we previously reported to you as preliminary.

If you have any questions about the report, please contact me by phone at 973-244-0600 or fax at 973-244-0722.

Very Truly Yours,

OXFORD ENVIRONMENTAL, INC.

Gary T. Boyer, P.E.

project engineer

Enclosures

cc: John Hendry, Lara Coraci

DATA VALIDATION SUMMARY REPORT

U. S. EPA REGION II
STANDARD OPERATING PROCEDURES HW-6 AND HW-2
FOR THE
CONTRACT LABORATORY PROGRAM
ORGANIC AND INORGANIC DATA REVIEW

CORNELL - DUBILIER
South Plainfield, New Jersey

SAMPLE DELIVERY GROUP 4754 CLP

Prepared For:

OXFORD ENVIRONMENTAL, INC.
43 Route 46 East
Pine Brook, New Jersey 07058
Attn: Gary Boyer

Prepared By:

GROUNDWATER SCIENCE & ENVIRONMENTAL TECHNOLOGY, INC. (GS&ET)
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SEPTEMBER 1997

DATA VALIDATION SUMMARY REPORT
CORNELL - DUBILIER
SAMPLE DELIVER GROUP 4754CLP

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DATA VALIDATION SUMMARY REPORT
CORNELL - DUBILIER
South Plainfield, New Jersey

PART I

METALS (CADMIUM AND LEAD)

STANDARD OPERATING PROCEDURES CHECK LIST

(EPA REGION II, HW-2, REV.11)

Title: Evaluation of Metals Data for the Contract Laboratory Program

Date: Jan. 1992
Number: HW-2
Revision: 11

1.0 **Scope**

1.1 This procedure is applicable to inorganic data obtained from contractor laboratories working for Hazardous Waste Site Contract Laboratory Program (CLP).

1.2 The data validation is based upon analytical and quality assurance requirements specified in Statement of Work (SOW) 3/90 .

2.0 **Responsibilities** - Data reviewers will complete the following tasks as assigned by the Data Review Coordinator:

2.1. For a **total review:**

2.1.1 **Data Assessment - "Total Review-Inorganics" Checklist Appendix (A.1).**
The reviewer must answer every question on the checklist.

2.1.2 **Data Assessment - Data Assessment Narrative (Appendix A.2)**
The answer on the checklist must match the action in the narrative (appendix A.2) and on Form I's. Do not use pencil to write the narrative.

2.1.3 **Contract Non-Compliance - SMO Report (Appendix A.3)**
This report is to be completed only when a serious contract violation is encountered, or upon the request of the Data Validation Task Monitor, or Technical Project Officer (TPO). Forward 5 copies: one each for internal files, appropriate Regional TPO, Sample Management Office (SMO) and last two addresses of Mailing List for Data Reviewers (Appendix A.4). In other cases, all contract violations should be appended to the end of the Data Assessment Narrative (Sec. A.2.2).

2.1.4 **CLP Data Assessment Summary Forms**

2.1.4.1 Appendix A.5
Fill in the total number of analytes analyzed by different analyses and the number of analytes rejected or flagged as estimated due to corresponding quality control criteria. Place an "X" in boxes where analyses were not performed, or criteria do not apply.

2.1.4.2 Appendix A.6
Data reviewer is also required to fill out Inorganic Regional Data Assessment form (Appendix A.7) provided by EPA Headquarters. Codes listed on the form will be used to describe the Data Assessment Summary.

2.1.5 **Data Review Log:** It is recommended that each data reviewer should maintain a log of the reviews completed to include: a. date of start of case review

b. date of completion of case review
c. site
d. case number
e. contract laboratory
f. number of samples
g. matrix
h. hours worked
i. reviewer's initials

2.1.6 **Telephone Record Log** - the data reviewer should enter the bare facts of inquiry, before initiating any phone conversation with CLP laboratory. After the case review has been completed, mail white copy of Telephone Record Log to the laboratory and pink copy to SMO. File yellow copy in the Telephone Record Log folder, and attach a xerox copy of the Telephone Record Log to the completed Data Assessment Narrative (Appendix A.2).

2.1.7 **Forwarded Paperwork**

2.1.7.1 Upon completion of review, the following are to be forwarded to the Regional Sample Control Center (RSCC) located in the Surveillance and Monitoring Branch:
a. data package
b. completed data assessment checklist (Appendix A.1,original)
c. SMO Contract Compliance Screening (CCS)
d. Record of Communication (copy)
e. CLP Reanalysis Request/Approval Record (original + 3 copies)
f. Appendix A.6 (original).

2.1.7.2 Forward 2 copies of completed Data Assessment Narrative (Appendix A.2) along with 2 copies of the Inorganic Data Assessment Form (Appendix A.6) and Telephone Record Log , if any,: one each for appropriate Regional TPO, and the other one to EPA EMSL office in Las Vegas. The addresses of TPOs and EPA office in Las Vegas are given in Appendix A-4.

2.1.8 **Filed Paperwork** - Upon completion of review, the following are to be filed within MMB files:
a. Two copies of completed Data Assessment Narrative (Appendix A.2) each carrying Appendix A.6.
b. Telephone Record Log (copy)
c. SMO Report (copy Appendix A-3)
d. CLP Reanalysis Request/Approval Record (copy)

3.0 **Data Completeness**

Each data package is checked by a Regional Sample Control Coordinator (RSSC) for completeness. A data package is assumed to be complete when all the deliverables required under the contract are present. If a data package is incomplete, the RSSC would call the laboratory for missing document(s). If the laboratory does not respond within a week, SMO and MMB coordinator of Region II will be notified.

4.0 **Rejection of Data** - All values determined to be unacceptable on the Inorganic Analysis Data Sheet (Form I) must be lined over with a red pencil. As soon as any review criteria causes data to be rejected, that data can be eliminated from any further review or consideration.

5.0 **Acceptance Criteria** - In order that reviews be consistent among reviewers, acceptance criteria as stated in Appendix A.1 (pages 4-25) should be used. Additional guidance can be found in the National Inorganic Functional Guidelines of October 1, 1989.

6.0 **SMO Contract Compliance Screening (CCS)** - This is intended to aid reviewer in locating any problems, both corrected and uncorrected. However, the validation should be carried out even if CCS is not present. Resubmittals received from laboratory in response to CCS must be used by the reviewer.

7.0 **Request for Reanalysis** - Data reviewers must note all items of contract non-compliance within Data Assessment Narrative. If holding times and sample storage times have not been exceeded, TPO may request reanalysis if items of non-compliance are critical to data assessment. Requests are to be made on "CLP Re-Analysis Request/Approval Record".

8.0 **Record of Communication** - Provided by the Regional Sample Control Center (RSCC) to indicate which data packages have been received and are ready to be reviewed.

9.0 **Rounding off numbers** - The data reviewer will follow the standard practice.

	YES	NO	N/A
A.1.1 **Contract Compliance Screening Report** (CCS) - Present?	[✓]	___	___
ACTION: If no, contact RSCC.			
A.1.2 **Record of Communication (from RSCC)** - Present?	[___]	___	✓
ACTION: If no, request from RSCC.			
A.1.3 **Trip Report** - Present and complete?	[___]	___	✓
ACTION: If no, contact RSCC for trip report.			
A.1.4 **Sample Traffic Report** - Present?	[✓]	___	___
Legible?	[✓]	___	___
ACTION: If no, request from Regional Sample Control Center (RSCC).			
A.1.5 **Cover Page** - Present?	[✓]	___	___
Is cover page properly filled in and signed by the lab manager or the manager's designee?	[✓]	___	___
ACTION: If no, prepare Telephone Record Log, and contact laboratory.			
Do numbers of samples correspond to numbers on Record of Communication?	[✓]	___	___
Do sample numbers on cover page agree with sample numbers on:			
(a) Traffic Report Sheet?	[✓]	___	___
(b) Form I's?	[✓]	___	___
ACTION: If no for any of the above, contact RSCC for clarification.			

Title: Evaluation of Metals Data for the Contract Laboratory Program
Appendix A.1: Data Assessment - Contract Compliance (Total Review)

Date: Jan. 1992
Number: HW-2
Revision: 11

		Yes	No	N/A
A.1.6	**Form I to IX**			
A.1.6.1	Are all the Form I through Form IX labeled with:			
	Laboratory name?	[✓]	___	___
	Case/SAS number?	[✓]	___	___
	EPA sample No.?	[✓]	___	___
	SDG No.?	[✓]	___	___
	Contract No.?	[___]	✓	___
	Correct units?	[✓]	___	___
	Matrix?	[✓]	___	___

ACTION: If no for any of the above, note under Contract Problem/Non-Compliance section of the "Data Assessment Narrative".

A.1.6.2 Do any computation/transcription errors exceed 10% of reported values on Forms I-IX for:

(**NOTE**: Check all forms against raw data.)

(a) all analytes analyzed by ICP?	[✓]	___	___
(b) all analytes analyzed by GFAA?	[___]	___	✓
(c) all analytes analyzed by AA Flame?	[___]	___	✓
(d) Mercury?	[___]	___	✓
(e) Cyanide?	[___]	___	✓

ACTION: If yes, prepare Telephone Log, contact laboratory for corrected data and correct errors with red pencil and initial.

Title: Evaluation of Metals Data for the Contract Laboratory Program
Appendix A.1: Data Assessment - Contract Compliance (Total Review)

Date: Jan. 1992
Number: HW-2
Revision: 11

		YES	NO	N/A
A.1.7	**Raw Data**			
A.1.7.1	Digestion Log* for flame AA/ICP (Form XIII) present?	[✓]	___	___
	Digestion Log for furnace AA Form XIII present?	[___]	___	✓
	Distillation Log for mercury Form XIII present?	[___]	___	✓
	Distillation Log for cyanides Form XIII present?	[___]	___	✓
	Are pH values (pH<2 for all metals, pH>12 for cyanide) present?	[___]	___	✓
	*Weights, dilutions and volumes used to obtain values.			
	Percent solids calculation present for soils/sediments?	[✓]	___	___
	Are preparation dates present on sample preparation logs/bench sheets?	[✓]	___	___
A.1.7.2	Measurement read out record present? ICP	[✓]	___	___
	Flame AA	[___]	___	✓
	Furnace AA	[___]	___	✓
	Mercury	[___]	___	✓
	Cyanides	[___]	___	✓
A.1.7.3	Are all raw data to support all sample analyses and QC operations present?	[✓]	___	___
	Legible?	[✓]	___	___
	Properly Labeled?	[✓]	___	___

ACTION: If no for any of the above questions in sections A.1.7.1 through A.1.7.3, write Telephone Record Log and contact laboratory for resubmittals.

Compliance (Total Review)

		YES	NO	N/A
A.1.8	**Holding Times** - (aqueous and soil samples)			
	(Examine sample traffic reports and digestion/distillation logs.)			
	Mercury analysis (28 days). . . . . exceeded?	___	[___]	✓
	Cyanide distillation (14 days). . . . . exceeded?	___	[___]	✓
	Other Metals analysis (6 months). . . . exceeded?	___	[✓]	___

NOTE: Prepare a list of all samples and analytes for which holding times have been exceeded. Specify the number of days from date of collection to the date of preparation (from raw data). Attach to checklist.

ACTION: If yes, reject (red-line) values less than Instrument Detection Limit (IDL) and flag as estimated (J) the values above IDL even though sample(s) was preserved properly.

A.1.8.2	Is pH of aqueous samples for:			
	Metals Analysis >2?	___	[___]	✓
	Cyanides Analysis <12?	___	[___]	✓

Action: If yes, flag the associated metals and cyanides data as estimated.

A.1.9	**Form I (Final Data)**			
A.1.9.1	Are all Form I's present and complete?	[✓]	___	___

ACTION: If no, prepare telephone record log and contact laboratory for submittal.

A.1.9.2	Are correct units (ug/l for waters and mg/kg for soils) indicated on Form I's?	[✓]	___	___
	Are soil sample results for each parameter corrected for percent solids?	[✓]	___	___
	Are all "less than IDL" values properly coded with "U"?	[✓]	___	___

		YES	NO	N/A
	Are the correct concentration qualifiers used with final data?	[✓]	___	___
	ACTION: If no for any of the above, prepare Telephone Record Log, and contact laboratory for corrected data.			
A.1.9.3	Are EPA sample # s and corresponding laboratory sample ID # s the same as on the Cover Page, Form I's and in the raw data?	[✓]	___	___
	Was a brief physical description of samples given on Form I's?	[✓]	___	___
	Was the dilution of any sample diluted beyond the requirements of the contract noted on Form I or Form XIV?	___	[✓]	___
	ACTION: If no for any of the above, note under Contract-Problem/Non-Compliance of the"Data Assessment Narrative".			
A.1.10	**Calibration**			
A.1.10.1	Is record of at least 2 point calibration present for ICP analysis?	[✓]	___	___
	Is record of 5 point calibration present for Hg analysis?	[___]	___	✓
	Is record of 4 point calibration present for:			
	Flame AA?	[___]	___	✓
	Furnace AA?	[___]	___	✓
	Cyanides?	[___]	___	✓
	Is one calibration standard at the CRDL level for all AA (except Hg) and cyanides analyses?	[___]	___	___
	ACTION: If no for any of the above, write in the Contract Problem/Non-Compliance section of the "Data Assessment Narrative".			

		YES	NO	N/A
A.1.10.2	Is correlation coefficient less than 0.995 for:			
	Mercury Analysis?	___	[___]	✓
	Cyanide Analysis?	___	[___]	✓
	Atomic Absorption Analysis?	___	[✓]	___

ACTION: If yes, flag the associated data as estimated.

NOTE: The data validator shall calculate the correlation coefficient using concentrations of the standards and the corresponding instrument response (e.g. absorbance, peak area, peak height, etc.).

A.1.10.3	In the instance where less than 4 standards are measured in absorbance (or peak area, peak height,etc.) mode, are the remaining standards analyzed in concentration mode immediately after calibration within ±10% of the true values?	[___]	___	✓

ACTION: If no, flag the associated data as estimated if standards are not within ±10% of true values. Do not flag the data as estimated in linear range indicated by good recovery of standard(s).

A.1.11 **Form II A (Initial and Continuing Calibration Verification)-**

A.1.11.1	Present and complete for every metal and cyanide?	[✓]	___	___
	Present and complete for AA and ICP when both are used for the same analyte?	[___]	___	✓

ACTION: If no for any of the above, prepare Telephone Record Log and contact laboratory.

A.1.11.2	Circle on each Form IIA all percent recoveries that are outside the contract windows. Are all calibration standards (initial and continuing) within control limits:			
	Metals- 90-110%R?	[✓]	___	___
	Hg - 80-120%R?	[___]	___	✓
	Cyanides- 85-115%R?	[___]	___	✓

	YES	NO	N/A
ACTION: Flag as estimated (J) all positive data (not flagged with a "U") analyzed between a calibration standard with %R between 75-89% (65-79% for Hg; 70-84% for CN) or 111-125% (121-135% for Hg; 116-130% for CN) recovery and nearest good calibration standard. Qualify results <IDL as estimated (UJ) if the ICV or CCV %R is 75-89% (CN, 70-84% ; HG, 65-79%). Reject (red-line) as unacceptable data if recovery of the ICV or CCV is outside the range 75-125% (CN, 70-130%; Hg, 65-135%). Qualify five samples on either side of verification standard out of control limits.			
A.1.11.3 Was continuing calibration performed every 10 samples or every 2 hours?	[✓]	___	___
Was ICV for cyanides distilled?	[___]	___	✓

ACTION: If no for any of the above, write in the Contract-Problem/Non-Compliance section of the "Data Assessment Narrative".

A.1.12 **Form II B (CRDL Standards for AA and ICP)** -

A.1.12.1 Was a CRDL standard (CRA) analyzed after initial calibration for all AA metals (except Hg)?	[✓]	___	___
Was a mid-range calib. verification standard distilled and analyzed for cyanide analysis?	[___]	___	✓
Was a 2xCRDL (or 2xIDL when IDL>CRDL) analyzed (CRI) for each ICP run? (Note: CRI for AL,Ba,Ca,Fe,Mg,Na,or K is not required.)	[✓]	___	___

ACTION: If no for any of the above, flag as estimated all data falling within the affected ranges. The affected ranges are:
AA Analysis - **True Value ± CRDL
ICP Analysis - **True Value ± 2CRDL
CN Analysis - **True Value ± 0.5 x True Value.

**True value of CRA, CRI or mid-range standard. Substitute IDL for CRDL when IDL > CRDL. Compute the concentration of the missing mid-range standard from the calibration range.

		YES	NO	N/A
A.1.12.2	Was CRI analyzed after ICV/ICB and before the final CCV/CCB, and twice every eight hours of ICP run?	[✓]	___	___
	ACTION: If no, write in Contract Problem/Non-Compliance Section of the "Data Assessment Narrative".			
A.1.12.3	Circle on each Form IIB all the percent recoveries that are outside the acceptance windows.			
	Are CRA and CRI standards within control limits:			
	Metals 80 - 120%R?	[✓]	___	___
	Is mid-range standard within control limits:			
	Cyanide 80 - 120%R?	[✓]	___	___
	ACTION: Flag as estimated all sample results within the affected range if the recovery of the standard is between 50-79%; flag only positive data within the affected range if the recovery is between 121-150%; reject all data within the affected range if the recovery is less than 50%; reject only positive data within the affected range if the recovery is greater than 150%. Qualify 50% of the samples on either side of CRI standard outside the control limits.			
	Note: Flag or reject the final results only when sample raw data are within the affected ranges and the CRDL standards are outside the acceptance windows.			
A.1.13	**Form III (Initial and Continuing Calibration Blanks)**			
A.1.13.1	Present and complete?	[✓]	___	___
	For both AA and ICP when both are used for the same analyte?	[ ]	___	✓
	Was an initial calibration blank analyzed?	[✓]	___	___
	Was a continuing calibration blank analyzed after every 10 samples or every 2 hours (which ever is more frequent)?	[✓]	___	___

		YES	NO	N/A
	ACTION: If no, prepare Telephone Record Log, contact laboratory and write in the Contract-Problems/ Non-Compliance section of the "Data Assessment Narrative".			
A.1.13.2	Circle on each Form III all calibration blank values that are above CRDL (or 2 x IDL when IDL > CRDL).			
	Are all calibration blanks (when IDL<CRDL) less than or equal to the Contract Required Detection Limits (CRDLs)?	[✓]	___	___
	Are all calibration blanks less than two times Instrument Detection Limit (when IDL>CRDL)?	[✓]	___	___
	ACTION: If no for any of the above, flag as estimated (J) positive sample results when raw sample value is less than or equal to calibration blank value analyzed between calibration blank with value over CRDL (or 2xIDL) and nearest good calibration blank. Flag five samples on either side of the calibration blank outside the control limits.			
A.1.14	**FORM III (Preparation Blank)** - (**Note**: The preparation blank for mercury is the same as the calibration blank.)			
A.1.14.1	Was one prep. blank analyzed for:			
	each Sample Delivery Group (SDG)?	[✓]	___	___
	each batch of digested samples?	[✓]	___	___
	each matrix type?	[✓]	___	___
	both AA and ICP when both are used for the same analyte?	[ ]	___	✓
	ACTION: If no for any of the above, flag as estimated (J) all the associated positive data <10 x IDLs for which prep. blank was not analyzed.			

NOTE: If only one blank was analyzed for more than 20 samples, then first 20 samples analyzed do not have to be flagged as estimated (J).

		YES	NO	N/A
A.1.14.2	Is concentration of prep. blank value greater than the CRDL when IDL is less than or equal to CRDL?	___	[✓]	___
	If yes, is the concentration of the sample with the least concentrated analyte less than 10 times the prep.blank?	___	[___]	✓
	ACTION: If yes, reject (red-line) all associated data greater than CRDL concentration but less than ten times the prep. blank value.			
A.1.14.3	Is concentration of prep. blank value (Form III) less than two times IDL, when IDL is greater than CRDL?	[✓]	___	___
	ACTION: If no, reject (red-line) all positive sample results when sample raw data are less than 10 times the prep. blank value.			
A.1.14.4	Is concentration of prep. blank below the negative CRDL?	___	[✓]	___
	ACTION: If yes, reject (red-line) all associated sample results less than 10xCRDL.			
A.1.15	**Form IV (ICP Interference Check Sample)**			
A.1.15.1	Present and complete?	[✓]	___	___
	(**NOTE**: Not required for furnace AA, flame AA, mercury, cyanide and Ca, Mg, K and Na.)			
	Was ICS analyzed at beginning and end of run (or at least twice every 8 hours)?	[✓]	___	___
	ACTION: If no, flag as estimated (J) all the samples for which AL, Ca, Fe, or Mg is higher than in ICS.			
A.1.15.2	Circle all values on each Form IV that are more than ± 20% of true or established mean value.			
	Are all Interference Check Sample results inside the control limits (± 20%)?	[✓]	___	___
	If no, is concentration of Al, Ca, Fe, or Mg lower than the respective concentration in ICS?	[___]	___	✓

		YES	NO	N/A
	ACTION: If no, flag as estimated (J) those positive results for which ICS recovery is between 121-150%; flag all sample results as estimated if ICS recovery falls within 50-79%; reject (red-line) those sample results for which ICS recovery is less than 50%; if ICS recovery is above 150%, reject positive results only (not flagged with a "U").			
A.1.16	**Form V A (Spiked Sample Recovery - Pre-Digestion/Pre-Distillation)** - (**Note**: Not required for Ca, Mg, K, and Na (both matrices), Al, and Fe (soil only.)			
A.1.16.1	Present and complete for: each SDG?	[✓]	___	___
	each matrix type?	[✓]	___	___
	each conc. range (i.e. low, med., high)?	[✓]	___	___
	For both AA and ICP when both are used for the same analyte?	[___]	___	✓
	ACTION: If no for any of the above, flag as estimated (J) all the positive data less than four times the spiking levels specified in SOW for which spiked sample was not analyzed.			
	NOTE: If one spiked sample was analyzed for more than 20 samples, then first 20 samples analyzed do not have to be flagged as estimated (J).			
A.1.16.2	Was field blank used for spiked sample?	___	[✓]	___
	ACTION: If yes, flag all positive data less than 4 x spike added as estimated (J) for which field blank was used as spiked sample.			
A.1.16.3	Circle on each Form VA all spike recoveries that are outside control limits (75% to 125%).			
	Are all recoveries within control limits?	[✓]	___	___
	If no, is sample concentration greater than or equal to four times spike concentration?	[___]	___	✓

	YES	NO	N/A

ACTION: If yes, disregard spike recoveries for analytes whose concentrations are greater than or equal to four times spike added. If no, circle those analytes on Form V for which sample concentration is less than four times the spike concentration.

Are results outside the control limits (75-125%) flagged with "N" on Form I's and Form VA? [ ] ___ ✓

ACTION: If no, write in the Contract - Problem/Non - Compliance section of "Data Assessment Narrative".

A.1.16.4 **Aqueous**

Are any spike recoveries:

(a) less than 30%?	___	[ ]	✓
(b) between 30-74%?	___	[ ]	✓
(c) between 126-150%?	___	[ ]	✓
(d) greater than 150%?	___	[ ]	✓

ACTION: If less than 30%, reject all associated aqueous data; if between 30-74%, flag all associated aqueous data as estimated (J); if between 126-150%, flag as estimated (J) all associated aqueous data not flagged with a "U"; if greater than 150%, reject (red-line) all associated aqueous data not flagged with a "U".

A.1.16.5 **Soil/Sediment**

Are any spike recoveries:

(a) less than 10%?	___	[✓]	___
(b) between 10-74%?	___	[✓]	___
(c) between 126-200%?	___	[✓]	___
(d) greater than 200%?	___	[✓]	___

		YES	NO	N/A
	ACTION: If less than 10%, reject all associated data; if between 10-74%, flag all associated data as estimated; if between 126-200%, flag as estimated all associated data was not flagged with a "U"; if greater than 200%, reject all associated data not flagged with a "U".			
A.1.17	**Form VI (Lab Duplicates)**			
A.1.17.1	Present and complete for: each SDG?	[✓]	___	___
	each matrix type?	[✓]	___	___
	each concentration range (i.e. low, med., high)?	[✓]	___	___
	both AA and ICP when both are used for the same analyte?	[___]	___	✓
	ACTION: If no for any the above, flag as estimated (J) all the data ≥CRDL* for which duplicate sample was not analyzed.			
	Note: 1. If one duplicate sample was analyzed for more than 20 samples, then first 20 samples do not have to be flagged as estimated.			
	2. If percent solids for soil sample and its duplicate differ by more than 1%, prepare a Form VI for each duplicate pair, report concentrations in ug/L on wet weight basis and calculate RPD or Difference for each analyte.			
A.1.17.2	Was field blank used for duplicate analysis?	___	[✓]	___
	ACTION: If yes, flag all data ≥CRDL* as estimated (J) for which field blank was used as duplicate.			
A.1.17.3	Are all values within control limits (RPD 20% or difference ≤ ±CRDL)?	[✓]	___	___
	If no, are all results outside the control limits flagged with an * on Form I's and VI?	[___]	___	✓
	ACTION: If no, write in the Contract - Problems/Non-Compliance section of "Data Assessment Narrative".			

* Substitute IDL for CRDL when IDL > CRDL.

	YES	NO	N/A

NOTE: 1. RPD is not calculable for an analyte of the sample - duplicate pair when both values are less than IDL.
2. If the result of lab duplicate analyzed by GFAA is rejectable due to coefficient of correlation of MSA, analytical spike recovery, or duplicate injections criteria, do not apply precision criteria to metals analyzed by GFAA.

A.1.17.4 **Aqueous**

Circle on each Form VI all values that are:

RPD > 50%, or
Difference > CRDL*

Is any RPD greater than 50% where sample and duplicate are both greater than or equal to 5 times *CRDL?	___	[___]	✓
Is any difference** between sample and duplicate greater than *CRDL where sample and/or duplicate is less than 5 times *CRDL?	___	[___]	✓

ACTION: If yes, flag the associated data as estimated.

A.1.17.5 **Soil/Sediment**

Circle on each Form VI all values that are:

RPD > 100%, or

Difference > 2 x CRDL*

Is any RPD (where sample and duplicate are both greater than or equal to 5 times *CRDL) :			
> 100%?	___	[✓]	___
Is any **difference between sample and duplicate (where sample and/or duplicate is less than 5x*CRDL) :			
> 2x*CRDL?	___	[✓]	___

* Substitute IDL for CRDL when IDL > CRDL.
** Use absolute values of sample and duplicate to calculate the difference.
ACTION: If yes, flag the associated data as estimated.

		YES	NO	N/A
A.1.18	**Field Duplicates**			
A.1.18.1	Were field duplicates analyzed?	[✓]	___	___

ACTION: If yes, prepare a Form VI for each aqueous field duplicate pair. Prepare a Form VI for each soil duplicate pair, if percent solids for sample and its duplicate differ by more than 1%; report concentrations of soils in ug/l on wet weight basis and calculate RPDs or Difference for each analyte.

NOTE: 1. Do not calculate RPD when both values are less than IDL.
2. Flag all associated data only for field duplicate pair.

A.1.18.2 **Aqueous**

Circle all values on self prepared Form VI for field duplicates that are:

RPD > 50%, or
Difference > CRDL*

Is any RPD greater than 50% where sample and duplicate are both greater than or equal to 5 times *CRDL?	___	[___]	✓
Is any **difference between sample and duplicate greater than *CRDL where sample and/or duplicate is less than 5 times *CRDL?	___	[___]	✓

ACTION: If yes, flag the associated data as estimated.

* Substitute IDL for CRDL when IDL > CRDL.
** Use absolute values of sample and duplicate to calculate the difference.

		YES	NO	N/A
A.1.18.3	**Soil/Sediment**			
	Circle all values on self prepared Form VI for field duplicates that are:			
	RPD >100%, or			
	Difference > 2 x CRDL*			
	Is any RPD (where sample and duplicate are both greater than 5 times *CRDL) :			
	>100%?	___	[✓]	___
	Is any **difference between sample and duplicate (where sample and/or duplicate is less than 5x *CRDL):			
	>2x *CRDL?	___	[✓]	___
	ACTION: If yes, flag the associated data as estimated.			
A.1.19	**Form VII (Laboratory Control Sample)** (Note: LCS - not required for aqueous Hg and cyanide analyses.)			
A.1.19.1	Was one LCS prepared and analyzed for:			
	each SDG?	[✓]	___	___
	each batch samples digested/distilled?	[✓]	___	___
	both AA and ICP when both are used for the same analyte?	[___]	___	✓
	ACTION: If no for any of the above, prepare Telephone Record Log and contact laboratory for submittal of results of LCS. Flag as estimated (J) all the data for which LCS was not analyzed.			
	NOTE: If only one LCS was analyzed for more than 20 samples, then first 20 samples close to LCS do not have to be flagged as estimated.			

* Substitute IDL for CRDL when IDL > CRDL.
** Use absolute values of sample and duplicate to calculate the difference.

		YES	NO	N/A
A.1.19.2	**Aqueous LCS**			
	Circle on each Form VII the LCS percent recoveries outside control limits (80 - 120%) except for aqueous Ag and Sb.			
	Is any LCS recovery: less than 50%?	___	[___]	✓
	between 50% and 79%?	___	[___]	✓
	between 121% and 150%?	___	[___]	✓
	greater than 150%?	___	[___]	✓
	ACTION: Less than 50%, reject (red-line) all data; between 50% and 79%, flag all associated data as estimated (J); between 121% and 150%, flag all positive (not flagged with a "U") results as estimated; greater than 150%, reject all positive results.			
A.1.19.3	**Solid LCS**			
	NOTE: 1. If "Found" value of LCS is rejectable due to duplicate injections or analytical spike recovery criteria, regardless of LCS recovery, flag the associated data as estimated (J).			
	2. If IDL of an analyte is equal to or greater than true value of LCS, disregard the "Action" below even though LCS is out of control limits.			
	Is LCS "Found" value higher than the control limits on Form VII?	___	[✓]	___
	ACTION: If yes, qualify all associated positive data as estimated.			
	Is LCS "Found" value lower than the Control limits on Form VII?	___	[✓]	___
	ACTION: If yes, qualify all associated data as estimated.			

		YES	NO	N/A
A.1.20	**Form IX (ICP Serial Dilution)** -			
	NOTE: Serial dilution analysis is required only for initial concentrations equal to or greater than 10 x IDL.			
A.1.20.1	Was Serial Dilution analysis performed for: each SDG?	[✓]	___	___
	each matrix type?	[✓]	___	___
	each concentration range (i.e. low, med.)?	[✓]	___	___
	ACTION: If no for any of the above, flag as estimated all the positive data ≥ 10xIDLs or ≥ CRDL when 10xIDL ≤ CRDL for which Serial Dilution Analysis was not performed.			
A.1.20.2	Was field blank(s) used for Serial Dilution Analysis?	___	[✓]	___
	ACTION: If yes, flag all associated data ≥ 10 x IDL as estimated (J). If 10xIDL ≤ CRDL, flag all data ≥ CRDL.			
A.1.20.3	Are results outside control limit flagged with an "E" on Form I's and Form IX when initial concentration on Form IX is equal to 50 times IDL or greater.	[ ]	___	✓
	ACTION: If no, write in the Contract-Problem/Non-Compliance section of the "Data Assessment Narrative".			
A.1.20.4	Circle on each Form IX all percent difference that are outside the control limits for initial concentrations equal to or greater than 10 x IDLs only.			
	Are any % difference values:			
	> 10%?	___	[✓]	___
	≥ 100%?	___	[✓]	___

		YES	NO	N/A
	ACTION: Flag as estimated (J) all the associated sample data ≥ 10xIDLs (or ≥ CRDL when 10xIDL ≤ CRDL) for which percent difference is greater than 10% but less than 100%. Reject (red-line) all the associated sample results equal to or greater than 10xIDLs (or ≥ CRDL when 10xIDL ≤ CRDL) for which PD is greater than or equal to 100%.			
	Note: Flag or reject on Form I's only the sample results whose associated raw data are ≥ 10xIDL (or ≥ CRDL when 10xIDL≤ CRDL)			
A.1.21	**Furnace Atomic Absorbtion (AA) QC Analysis**			
A.1.21.1	Are duplicate injections present in furnace raw data (except during full Method of Standard Addition) for each sample analyzed by GFAA?	[___]	___	✓
	ACTION: If no, reject the data on Form I's for which duplicate injections were not performed.			
A.1.21.2	Do the duplicate injection readings agree within 20% Relative Standard Deviation (RSD) or Coefficient of Variation (CV) for concentration greater than CRDL?	[___]	___	✓
	Was a dilution analyzed for sample with analytical spike recovery less than 40%?	[___]	___	✓
	ACTION: If no for any of the above, flag all the associated data as estimated.			
A.1.21.3	Is *analytical spike recovery outside the control limits (85-115%) for any sample?	___	[___]	✓
	ACTION: If yes, flag as estimated the affected sample results if the recovery is between 10-84%; if the recovery is between 115-200%, flag the associated positive sample results as estimated; reject the associated sample results if the recovery is less than 10%; reject positive sample results if the recovery is greater than 200%.			

* Analytical spike is not required on the pre-digestion spiked sample.

		YES	NO	N/A
	NOTE: Reject or flag the data only when the affected sample(s) was not subsequently analyzed by Method of Standard Addition.			
A.1.22	**Form VIII (Method of Standard Addition Results)**			
A.1.22.1	Present?	[ ]		✓
	If no, is any Form I result coded with "S" or a "+"?		[ ]	
	ACTION: If yes, write request on Telephone Record Log and contact laboratory for submittal of Form VIII.			
A.1.22.2	Is coefficient of correlation for MSA less than 0.990 for any sample?		[ ]	
	ACTION: If yes, reject (red-line) the affected data.			
A.1.22.3	Was *MSA required for any sample but not performed?		[ ]	
	Is coefficient of correlation for MSA less than 0.995?		[ ]	
	Are MSA calculations outside the linear range of the calibration curve generated at the beginning of the analytical run?		[ ]	
	ACTION: If yes for any of the above, flag all the associated data as estimated (J).			
A.1.22.4	Was proper quantitation procedure followed correctly as outlined in the SOW on page E-23?	[ ]		
	ACTION: If no, note exception under Contract Problem/ Non-Compliance section of the "Data Assessment Narrative", and prepare a separate list.			

* MSA is not required on LCS and prep. blank.

		YES	NO	N/A
A.1.23	**Dissolved/Total or Inorganic/Total Analytes** -			
A.1.23.1	Were any analyses performed for dissolved as well as total analytes on the same sample(s).	___	[X] BWR 8.29.97	✓
	Were any analyses performed for inorganic as well as total (organic + inorganic) analytes on the same sample(s)?	___	[X] BWR 8.29.97	✓
	NOTE: 1. If yes, prepare a list comparing differences between all dissolved (or inorganic) and total analytes. Compute the differences as a percent of the total analyte only when dissolved concentration is greater than CRDL as well as total concentration. 2. Apply the following questions only if inorganic (or dissolved) results are (i) above CRDL, and (ii) greater than total constituents. 3. At least one preparation blank, ICS, and LCS should be analyzed in each analytical run.			
A.1.23.2	Is the concentration of any dissolved (or inorganic) analyte greater than its total concentration by more than 10%?	___	[___]	✓
A.1.23.3	Is the concentration of any dissolved (or inorganic) analyte greater than its total concentration by more than 50%?	___	[___]	✓
	ACTION: If more than 10%, flag both dissolved (or inorganic) and total values as estimated (J); if more than 50%, reject (red-line) the data for both values.			
A.1.24	**Form I (Field Blank)** -			
	(Note: Designate "Field Blank" as such on Form I.)			
A.1.24.1	Circle all field blank values on Form I that are greater than CRDL, (or 2 x IDL when IDL > CRDL).			
	Is field blank concentration less than CRDL (or 2 x IDL when IDL > CRDL) for all parameters of associated aqueous and soil samples?	[___]	___	✓

	YES	NO	N/A
If no, was field blank value already rejected due to other QC criteria?	[ ]		

ACTION: If no, reject (except field blank results) all associated positive sample data less than or equal to five times the field blank value. Reject on Form I's the soil sample results that when converted to ug/L on wet basis are less than or equal to five times the field blank value in ug/L.

A.1.25 **Form X, XI, XII (Verification of Instrumental Parameters).**

A.1.25.1 Is verification report present for:

Instrument Detection Limits (quarterly)?	[✓]		
ICP Interelement Correction Factors (annually)?	[✓]		
ICP Linear Ranges (quarterly)?	[✓]		

ACTION: If no, contact TPO of the lab.

A.1.25.2 **Form X (Instrument Detection Limits)** - (Note: IDL is not required for Cyanide.)

A.1.25.2.1 Are IDLs present for: all the analytes?	[✓]		
all the instruments used?	[✓]		
For both AA and ICP when both are used for the same analyte?	[ ]		✓

ACTION: If no for any of the above, prepare Telephone Record Log and contact laboratory.

A.1.25.2.2 Is IDL greater than CRDL for any analyte?		[✓]	
If yes, is the concentration on Form I of the sample analyzed on the instrument whose IDL exceeds CRDL, greater than 5 x IDL.	[ ]		✓

	YES	NO	N/A

Action : If no, flag as estimated all values less than five times IDL of the instrument whose IDL exceeds CRDL.

A.1.25.3 **Form XI (Linear Ranges)**

A.1.25.3.1 Was any sample result higher than high linear range of ICP.	___	[✓]	___
Was any sample result higher than the highest calibration standard for non-ICP parameters?	___	[✓]	___
If yes for any of the above, was the sample diluted to obtain the result on Form I?	[___]	___	✓

ACTION: If no, flag the result reported on Form I as estimated(J).

A.1.26 **Percent Solids of Sediments**

A.1.26.1 Are percent solids in sediment(s): < 50%?	___	[✓]	___
< 10%?	___	[✓]	___

ACTION: If yes, qualify as estimated all the results of a sample that has per cent solids between 10%-50% (i.e. moisture content between 50%-90%). Reject all the results of a sample that has per cent solids less than 10% (i.e. moisture content greater than 90%).

NOTE: Reject or flag(J) only the sample results that were not previously rejected or flaged due to other QC criteria.

Case#	9703	**Site**	Cornell-Dubilier	**Matrix:**	**Soil** ___X___
SDG#	4754CLP	**Lab**	CHEMTECH		**Water**_____
Contractor	GS&ET, Inc.	**Reviewer**	Dr. B. V. Rao		**Other**_____

A.2.1 **Validation Flags-** The following flags have been applied in red by the data validator and must be considered by the data user.

J- This flag indicates the result qualified as **estimated**

Red- Line- A red-line drawn through a sample result indicates **unusable** value. The red-lined data are known to contain significant errors based on documented information and must not be used by the data user.

Fully Usable Data- The results that do not carry "J" or "red-line" are fully **usable.**

Contractual Qualifiers- The legend of contractual qualifiers applied by the lab on Form I's is found on page B-20 of SOW ILM01.0.

A.2.2 The data assessment is given below and on the attached sheets.

This data validation report discusses the data quality of 13 soil samples analyzed for lead and cadmium.

The samples were successfully analyzed and no QA/QC problems were identified during the data review.

No qualifiers are necessary for cadmium and lead data presented in the laboratory data package.

A.2.2 (continuation)

A.2.2 (continuation)

A.2.3 Contract-Problem/Non-Compliance

NONE

MMB/ESAT Rviewer: _____ Date: _____
Signature

Contractor Reviewer: _____ Date: 8.29.97
Signature

Verified by: _____ Date: _____

CONTRACT NON-COMPLIANCE
(SMO REPORT)

Regional Review of Uncontrolled Hazardous Waste
Site Contract Laboratory Data Package

CASE NO._____

The hardcopied (laboratory name)_____
Inorganic data package received at Region II has been reviewed and the quality assurance and performance data summarized. The data reviewed included:
SMO Sample No.:_____

Conc. & Matrix:_____

Contract No.(_____) requires that specific analytical work be done and that associated reports be provided by the contractor to the Regions, EMSL-LV, and SMO. The general criteria used to determine the performance were based on an examination of:

- Data Completeness
- Matrix Spike Results
- Calibration Standards Results
- Duplicate Analysis Results
- Blank Analysis Results
- MSA Results

Items of non-compliance with the above contract are described below.

Comments:_____

Title: Evaluation of Metals Data for the Contract Laboratory Program
Appendix A.6: CLP Data Assessment Checklist

Inorganic Analysis

Date: Jan. 1992
Number: HW-2
Revision: 11

INORGANIC REGIONAL DATA ASSESSMENT Region II

CASE NO. 9703 SITE CORNELL-DUBILIER

LABORATORY CHEMTECH NO. OF SAMPLES/ MATRIX SOILS

SDG# 4754 CLP REVIEWER (IF NOT ESD)

SOW# REVIEWER'S NAME

DPO: ACTION FYI COMPLETION DATE

DATA ASSESSMENT SUMMARY

		ICP	AA	Hg	CYANIDE
1.	HOLDING TIMES	0			
2.	CALIBRATIONS	0			
3.	BLANKS	0			
4.	ICS	0			
5.	LCS	0			
6.	DUPLICATE ANALYSIS	0			
7.	MATRIX SPIKE	0			
8.	MSA				
9.	SERIAL DILUTION	0			
10.	SAMPLE VERIFICATION	0			
11.	OTHER QC	0			
12.	OVERALL ASSESSMENT	0			

O = Data has no problems/or qualified due to minor problems.
M = Data qualified due to major problems.
Z = Data unacceptable.
X = Problems, but do not affect data.

ACTION ITEMS:

AREAS OF CONCERN:

NOTABLE PERFORMANCE:

INORGANIC ANALYSIS DATA SHEETS (FORM 1s)

EPA SAMPLE NO.

INORGANIC ANALYSIS DATA SHEET

C-D #1 ✓

Lab Name: CHEMTECH CONSULTING GROUP Contract:

Lab Code: CHEM Case No.: 9703 SAS No.: SDG No.: 9704754

Matrix (soil/water): SOIL Lab Sample ID: 25289S

Level (low/med): LOW Date Received: 08/04/97

% Solids: 89.3

Concentration Units (ug/L or mg/Kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7439-92-1	Lead	330			P
7440-43-9	Cadmium	1.5			P

Color Before: BROWN Clarity Before: Texture: MEDIUM

Color After: YELLOW Clarity After: Artifacts:

Comments:

EPA SAMPLE NO.

C-D #10 ✓

INORGANIC ANALYSIS DATA SHEET

Lab Name: CHEMTECH CONSULTING GROUP Contract:

Lab Code: CHEM Case No.: 9703 SAS No.: SDG No.: 9704754

Matrix (soil/water): SOIL Lab Sample ID: 25298S

Level (low/med): LOW Date Received: 08/04/97

% Solids: 97.2

Concentration Units (ug/L or mg/Kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7439-92-1	Lead	229			P
7440-43-9	Cadmium	4.9			P

Color Before: BROWN Clarity Before: Texture: MEDIUM

Color After: YELLOW Clarity After: Artifacts:

Comments:

EPA SAMPLE NO.

INORGANIC ANALYSIS DATA SHEET

C-D #11

Lab Name: CHEMTECH CONSULTING GROUP Contract:

Lab Code: CHEM Case No.: 9703 SAS No.: SDG No.: 9704754

Matrix (soil/water): SOIL Lab Sample ID: 25301S

Level (low/med): LOW Date Received: 08/04/97

% Solids: 82.2

Concentration Units (ug/L or mg/Kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7439-92-1	Lead	386			P
7440-43-9	Cadmium	7.3			P

Color Before: BROWN Clarity Before: Texture: MEDIUM

Color After: YELLOW Clarity After: Artifacts:

Comments:

EPA SAMPLE NO.

INORGANIC ANALYSIS DATA SHEET

C-D #12

Lab Name: CHEMTECH CONSULTING GROUP Contract:

Lab Code: CHEM Case No.: 9703 SAS No.: SDG No.: 9704754

Matrix (soil/water): SOIL Lab Sample ID: 25302S

Level (low/med): LOW Date Received: 08/04/97

% Solids: 93.8

Concentration Units (ug/L or mg/Kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7439-92-1	Lead	1820			P
7440-43-9	Cadmium	5.9			P

Color Before: BROWN Clarity Before: Texture: MEDIUM

Color After: YELLOW Clarity After: Artifacts:

Comments:

EPA SAMPLE NO.

INORGANIC ANALYSIS DATA SHEET

C-D #13

Lab Name: CHEMTECH CONSULTING GROUP Contract:

Lab Code: CHEM Case No.: 9703 SAS No.: SDG No.: 9704754

Matrix (soil/water): SOIL Lab Sample ID: 25303S

Level (low/med): LOW Date Received: 08/04/97

% Solids: 90.5

Concentration Units (ug/L or mg/Kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7439-92-1	Lead	56.6			P
7440-43-9	Cadmium	0.22	U		P

Color Before: BROWN Clarity Before: Texture: MEDIUM

Color After: YELLOW Clarity After: Artifacts:

Comments:

EPA SAMPLE NO.

INORGANIC ANALYSIS DATA SHEET

C-D #2

Lab Name: CHEMTECH CONSULTING GROUP Contract:

Lab Code: CHEM Case No.: 9703 SAS No.: SDG No.: 9704754

Matrix (soil/water): SOIL Lab Sample ID: 25290S

Level (low/med): LOW Date Received: 08/04/97

% Solids: 93.9

Concentration Units (ug/L or mg/Kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7439-92-1	Lead	622			P
7440-43-9	Cadmium	1.7			P

Color Before: BROWN Clarity Before: Texture: MEDIUM

Color After: YELLOW Clarity After: Artifacts:

Comments:

EPA SAMPLE NO.

INORGANIC ANALYSIS DATA SHEET

C-D #3

Lab Name: CHEMTECH CONSULTING GROUP Contract:

Lab Code: CHEM Case No.: 9703 SAS No.: SDG No.: 9704754

Matrix (soil/water): SOIL Lab Sample ID: 25291S

Level (low/med): LOW Date Received: 08/04/97

% Solids: 93.6

Concentration Units (ug/L or mg/Kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7439-92-1	Lead	161			P
7440-43-9	Cadmium	1.4			P

Color Before: BROWN Clarity Before: Texture: MEDIUM

Color After: YELLOW Clarity After: Artifacts:

Comments:

EPA SAMPLE NO.

INORGANIC ANALYSIS DATA SHEET

C-D #4

Lab Name: CHEMTECH CONSULTING GROUP Contract:

Lab Code: CHEM Case No.: 9703 SAS No.: SDG No.: 9704754

Matrix (soil/water): SOIL Lab Sample ID: 25292S

Level (low/med): LOW Date Received: 08/04/97

% Solids: 97.8

Concentration Units (ug/L or mg/Kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7439-92-1	Lead	74.7			P
7440-43-9	Cadmium	0.93	B		P

BVRao 8.25.97

Color Before: BROWN Clarity Before: Texture: MEDIUM

Color After: YELLOW Clarity After: Artifacts:

Comments:

EPA SAMPLE NO.

INORGANIC ANALYSIS DATA SHEET

C-D #5

Lab Name: CHEMTECH CONSULTING GROUP Contract:

Lab Code: CHEM Case No.: 9703 SAS No.: SDG No.: 9704754

Matrix (soil/water): SOIL Lab Sample ID: 25293S

Level (low/med): LOW Date Received: 08/04/97

% Solids: 98.2

Concentration Units (ug/L or mg/Kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7439-92-1	Lead	128			P
7440-43-9	Cadmium	1.7			P

Color Before: BROWN Clarity Before: Texture: MEDIUM

Color After: YELLOW Clarity After: Artifacts:

Comments:

EPA SAMPLE NO.

INORGANIC ANALYSIS DATA SHEET

C-D #6

Lab Name: CHEMTECH CONSULTING GROUP Contract:

Lab Code: CHEM Case No.: 9703 SAS No.: SDG No.: 9704754

Matrix (soil/water): SOIL Lab Sample ID: 25294S

Level (low/med): LOW Date Received: 08/04/97

% Solids: 93.1

Concentration Units (ug/L or mg/Kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7439-92-1	Lead	3260			P
7440-43-9	Cadmium	3.5			P

Color Before: BROWN Clarity Before: Texture: MEDIUM

Color After: YELLOW Clarity After: Artifacts:

Comments:

EPA SAMPLE NO.

INORGANIC ANALYSIS DATA SHEET

C-D #7

Lab Name: CHEMTECH CONSULTING GROUP Contract:

Lab Code: CHEM Case No.: 9703 SAS No.: SDG No.: 9704754

Matrix (soil/water): SOIL Lab Sample ID: 25295S

Level (low/med): LOW Date Received: 08/04/97

% Solids: 75.5

Concentration Units (ug/L or mg/Kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7439-92-1	Lead	3470			P
7440-43-9	Cadmium	4.6			P

Color Before: BROWN Clarity Before: Texture: MEDIUM

Color After: YELLOW Clarity After: Artifacts:

Comments:

EPA SAMPLE NO.

INORGANIC ANALYSIS DATA SHEET

C-D #8

Lab Name: CHEMTECH CONSULTING GROUP Contract:

Lab Code: CHEM Case No.: 9703 SAS No.: SDG No.: 9704754

Matrix (soil/water): SOIL Lab Sample ID: 25296S

Level (low/med): LOW Date Received: 08/04/97

% Solids: 94.6

Concentration Units (ug/L or mg/Kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7439-92-1	Lead	190			P
7440-43-9	Cadmium	17.3			P

Color Before: BROWN Clarity Before: Texture: MEDIUM

Color After: YELLOW Clarity After: Artifacts:

Comments:

EPA SAMPLE NO.

INORGANIC ANALYSIS DATA SHEET

C-D #9

Lab Name: CHEMTECH CONSULTING GROUP Contract:

Lab Code: CHEM Case No.: 9703 SAS No.: SDG No.: 9704754

Matrix (soil/water): SOIL Lab Sample ID: 25297S

Level (low/med): LOW Date Received: 08/04/97

% Solids: 96.2

Concentration Units (ug/L or mg/Kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7439-92-1	Lead	300			P
7440-43-9	Cadmium	3.9			P

Color Before: BROWN Clarity Before: Texture: MEDIUM

Color After: YELLOW Clarity After: Artifacts:

Comments:

DEFINITIONS

GLOSSARY A:

Definition of Selected Terms

Associated Samples	Any sample related to a particular QC analysis. For example: - For ICV, all samples run under the same calibration curve. - For duplicate RPD, all SDG samples digested/distilled of the same matrix.
AA	Atomic Absorption
Calibration Curve	A plot of absorbance versus concentration of standards
Case	A finite, usually predetermined number of samples collected in a given time period for a particular site. A Case consists of one or more Sample Delivery Groups.
CCB	Continuing Calibration Blank - a deionized water sample run every ten samples designed to detect any carryover contamination.
CCS	Contract Compliance Screening - process in which SMO inspects analytical data for contractual compliance and provides EMSL/LV, laboratories, and the Regions with their findings.
CCV	Continuing Calibration Verification - a standard run every ten samples designed to test instrument performance.
CLP	Contract Laboratory Program
CRDL	Contract Required Detection Limit
CV	Coefficient of Variation
EMSL/LV	Environmental Monitoring System Laboratory/Las Vegas (P.O. Box 15027, Las Vegas, Nevada 89114)
Field Blank	Field blanks are intended to identify contaminants that may have been introduced in the field. Examples are trip blanks, travel blanks, rinsate blanks, and decontamination blanks.

Field Duplicate	A duplicate sample generated in the field, not in the laboratory.
Holding Time	The time from sample collection to laboratory analysis.
ICB	Initial Calibration Blank - first blank standard run to confirm the calibration curve.
ICP	Inductively Coupled Plasma
ICS	Interference Check Sample
ICV	Initial Calibration Verification - first standard run to confirm the calibration curve.
Initial Calibration	The establishment of a calibration curve with the appropriate number of standards and concentration range. The calibration curve plots absorbance or emission versus concentration of standards.
IRDA	Inorganic Regional Data Assessment
LCS	Laboratory Control Sample - supplied by EPA
MS	Matrix Spike - introduction of a known concentration of analyte into a sample to provide information about the effect of the sample matrix on the digestion and measurement methodology.
MSA	Method of Standard Addition
Post Digestion Spike	The addition of a known amount of standard after digestion. (Also identified as analytical spike, or spike, for furnace analyses.)
QAC	Quality Assurance Coordinator
RPD	Relative Percent Difference
RSCC	Regional Sample Control Center
RSD	Relative Standard Deviation
Serial Dilution	A sample run at a specific dilution to determine whether any significant chemical or physical interferences exist due to sample matrix effects. (ICP only)

DATA VALIDATION SUMMARY REPORT
CORNELL - DUBILIER
South Plainfield, New Jersey

PART II

PCBs

STANDARD OPERATING PROCEDURES CHECK LIST

(EPA REGION II, HW-6, REV.10)

YES NO N/A

PACKAGE COMPLETENESS AND DELIVERABLES

CASE NUMBER: 9703 LABORATORY: CHEMTECH

SITE NAME: CORNELL-DUBILIER SDG Number(s): 4754 CLP

1.0 Chain of Custody and Sampling Trip Reports

1.1 Are the Traffic Reports/Chain-of-Custody Records present for all samples? [✓] ___ ___

ACTION: If no, contact lab for replacement of missing or illegible copies.

1.2 Is the Sampling Trip Report present for all samples and all fractions? [ ] [✓] ___

ACTION: If no, contact either RSCC or the prime contractor for this information.

2.0 Data Completeness and Deliverables

2.1 Have any missing deliverables been received and added to the data package? ___ ___

NOTE: The lab is required to submit data for only two analyses, for each fraction. (i.e., the original sample and one dilution, or, from the most concentrated dilution analyzed and one further dilution.)

ACTION: Call lab for an explanation or resubmittal of any missing deliverables. If lab cannot provide them, note the effect on review of the package under the Contract Non- compliance section of the Data Assessment and the Organic Regional Data Assessment summary.

2.2 Was CLASS CCS checklist included with package? [ ] [✓] ___

2.3 Are there any discrepancies between the Traffic Reports/Chain-of-Custody Records, Sampling Report and Sample Tags? ___ [✓] ___

	YES	NO	N/A

ACTION: If yes, contract the laboratory for an explanation or resubmittal of any missing deliverables.

3.0 Cover Letter SDG Narrative

		YES	NO	N/A
3.1	Is the Narrative or Cover Letter Present?	[✓]	___	___
3.2	Are Case Number and/or SAS number contained in the Narrative or Cover letter?	[✓]	___	___
3.3	Does the narrative contain the following information:			
	VOA: description of trap and columns used during sample analyses?	[ ]	___	✓
	BNA: description of columns used during sample analyses?	[ ]	___	✓
	Pest: description of columns used during sample analyses?	[✓]	___	___

NOTE: As per section 6.23.3.1 SOW/p. D-11/Pest, Packed columns are not permitted.

3.4	Does the narrative, VOA and BNA sections, contain a list of all TICs identified as alkanes and their estimated concentrations?	[ ]	___	✓
3.5	Does the narrative contain a record of all cooler temperatures? If the temperature of a cooler was exceeded, > 10° C, the lab must list by fraction and sample number, all affected samples.	[ ]	___	✓
3.6	Does the narrative contain a list of the pH values determined for each water sample submitted for volatile analysis?	[ ]	___	✓
3.7	Does the Case Narrative contain the statement, "verbatim", as required in Section B of the SOW?	[✓]	___	___

ACTION: If "No", to any question in this section, contact the laboratory for all necessary resubmittals. If information is not available, document in the Data Assessment under Problems/Non-Compliance section.

	YES	NO	N/A

4.0 Data Validation Checklist

4.1 Check the package for the following discrepancies:

	YES	NO	N/A
a. Is the package paginated in ascending order starting from the SDG narrative?	☑		
b. Are all forms and copies legible?	☑		
c. Is each fraction assembled in the order set forth in the SOW?	☑		
d. Is a Sample Data Summary Package submitted immediately preceding the Sample Data Package?	☐	✓	

The following checklist is divided into three parts. Part A is for any VOA analyses, Part B is for BNAs and Part C is Pesticide/PCBs.

Does this package contain:

VOA Data?		✓	
BNA Data?		✓	
Pesticide/PCB data?	✓		

ACTION: Complete corresponding parts of checklist.

YES NO N/A

PART C: PESTICIDE/PCB ANALYSIS

1.0 Sample Conditions/Problems

1.1 Do the Traffic Reports/Chain-of-Custody Records or SDG Narrative indicate any problems with sample receipt, condition of the samples, analytical problems or special circumstances affecting the quality of the data? ___ ☑ ___

ACTION: If any sample analyzed as a soil, other than TCLP, contains 50% - 90% water, all data should be qualified as estimated "J". If a soil sample, other than TCLP, contains more than 90% water, all data should be qualified as unusable "R".

ACTION: If samples were not iced, or if the ice was melted upon arrival at the laboratory, and the temperature of the cooler was elevated, > 10^0 C, flag all positive results "J" and all non-detects "UJ".

2.0 Holding Times

2.1 Have any PEST/PCB technical holding times, determined from date of collection to date of extraction, been exceeded? ___ ☑ ___

NOTE: Technical Holding Times: Water and soil samples for PEST/PCB analysis must be extracted within 7 days of the date of collection. Extracts must be analyzed within 40 days of the date extraction.

ACTION: If technical holding times are exceeded, flag all positive results as estimated "J" and sample quantitation limits "UJ" and document in the narrative that holding times were exceeded. If analyses were done more than 14 days beyond holding time, either on the first analysis or upon re-analysis, the reviewer must use professional judgement to determine the reliability of the data and the effects of additional storage on the sample results. At a minimum, all the data should at least be qualified "J", but the reviewer may determine that non-detects are unusable "R".

YES NO N/A

Table of Holding Time Violations
(See Chain-of-Custody Records)

Sample Analyzed	Sample Matrix	Date Sampled	Date Lab Received	Date Extracted
ALL SAMPLES	SOIL	8-4-97	8-4-97	8-4-97

NOTE: Contractual Holding Times: Extraction of water samples must be completed within 5 days VTSR. Soil/sediment samples must be extracted within 10 days of VTSR. This requirement does not apply to Performance Evaluation (PE) samples. Extracts of water and soil/sediment samples must be analyzed within 40 days following start of extraction.

ACTION: If contractual holding times are exceeded, document in the Data Assessment and Organic Regional Data Assessment Summary form.

NOTE: The data reviewer must note in the Data Assessment whether or not **technical and contractual** holding times were met.

3.0 Surrogate Recovery (Form II)

3.1 Are the PEST/PCB Surrogate Recovery Summaries (Form II) present for each of the following matrices:

a. Low Water? [✓] ___ ___

b. Soil? [✓] ___ ___

3.2 Are all the PEST/PCB samples listed on the appropriate Surrogate Recovery Summary for each of the following matrices:

a. Low Water? [ ] ___ ✓

	YES	NO	N/A
b. Soil?	☑		

ACTION: Call lab for explanation/resubmittals. If missing deliverables are unavailable, document the effect in the Data Assessment.

3.3	Were outliers marked correctly with an asterisk?	☑		

ACTION: Circle all outliers in red.

3.4	Were surrogate recoveries of TCX or DCB outside of the contract specification for any sample, method blank or sulfur clean-up blank (30-150%)?	☑		

ACTION: In the absence of matrix interference, qualification of the data is <u>not</u> required in the following three situations:

1. When surrogates on both columns are diluted out.

2. When <u>one surrogate</u> on <u>one column</u> was outside (either above or below) the contract limits but above 10%.

3. When <u>the same surrogate</u> on <u>both columns</u> is above the contract limit.

If <u>the same surrogate</u> on <u>both columns</u> is below the contract limit but above 10%, check chromatograms for interference. The reviewer may use professional judgement, and qualify only those analytes which elute in the region of the GC chromatogram where interference was observed.

If <u>the same surrogate</u> on <u>both columns</u> is below the contract limit but above 10% (with no interference), qualify non-detects and positive hits "J" (estimated).

If recoveries for <u>both surrogates</u> on <u>both columns</u> are below the contract limit but above 10%, flag positive results and non-detects for that sample "J".

If recoveries are above the contract limit for <u>both surrogates</u> on <u>both columns</u>, then qualify

	YES	NO	N/A

positive values "J".

If both surrogates on one column are below the contract limit but above 10%, then use the data from the other column, providing both surrogates on that column are within contract limits. The validator must check from which column the concentration is reported for each analyte. If the value is reported from the failed column, then cross it out and use the value from the other column. Document this change in the Data Assessment.

If recovery is below 10% for either surrogate on any column, qualify positive results "J" and flag non-detects "R".

3.5	Were surrogate retention times (RT) within the windows established during the initial 3-point analysis of Individual Standard Mixture A (see Form VI Pest-1)?	☑		

ACTION: If the RT limits are not met, positive results and non-detects for that sample may be qualified unusable, "R", based on professional judgement.

3.6	Are there any transcription/calculation errors between raw data and Form II?		☑	

ACTION: If large errors exist, call lab for explanation/resubmittal. Make any necessary corrections and document effect in the Data Assessments.

4.0 Matrix Spikes (Form III)

4.1	Is the Matrix Spike/Matrix Spike Duplicate Recovery Form (Form III) present?	☑		
4.2	Were matrix spikes analyzed at the required frequency for each of the following matrices (one MS/MSD must be performed for every 20 samples of similar matrix or concentration level):			
	a. Low Water?	☑		✓

	YES	NO	N/A
b. Soil?	[✓]	___	___

ACTION: If any matrix spike data are missing, take the action specified in 3.2 above.

ACTION: Circle all outliers in red.

4.3 How many PEST/PCB spike recoveries are outside QC limits?

Water	Soil
~~N/A~~ out of 12	4 out of ~~12~~ 16

4.4 How many RPDs for matrix spike and matrix spike duplicate recoveries are outside QC limits?

Water	Soil
~~N/A~~ out of 6	0 out of ~~6~~ 2

ACTION: No action is taken on MS/MSD data alone. However, using informed professional judgement, the data reviewer may use the matrix spike and matrix spike duplicate results in conjunction with other QC criteria and determine the need for some qualification of the data.

5.0 Blanks (Form IV)

5.1 Is the Method Blank Summary (Form IV) present?	[✓]	___	___
5.2 Frequency of Analysis: Has a reagent/method blank been analyzed for each SDG or every 20 samples of similar matrix or concentration or each extraction batch, whichever is more frequent?	[✓]	___	___

ACTION: If any blank data are missing, take the action specified above in 3.2. If blank data is not available, reject "R" all associated positive data. However, using professional judgement, the data reviewer may substitute field blank data for missing method blank data.

5.3 Has a PEST/PCB instrument blank been analyzed at the beginning of every 12 hr. period following

	YES	NO	N/A
the initial calibration sequence (minimum contract requirement)?	[✓]	___	___

ACTION: If any blank data are missing, call lab for explanation/resubmittals. If missing deliverables are unavailable, document in the Data Assessments.

5.4 Was the correct identification scheme used for all Pest/PCB blanks? (See page B-33, sec. 3.3.7.3 of the SOW for further information.)	[✓]	___	___

ACTION: Contact the lab for resubmittals or make the required corrections on the forms. Document in the Data Assessment under Contract Problems/Non-Compliance if corrections were made by the validator.

5.5 Chromatography: review the blank raw data - chromatograms, quant reports and data system printouts. Is the chromatographic performance (baseline stability) for each instrument acceptable?	[✓]	___	___

ACTION: Use professional judgement to determine the effect on the data.

5.6 If any method blanks and/or sulfur clean-up blanks contain any "hits" for target compounds, are these hits less than the CRQL?	[ ]	___	✓
5.7 In all instrument blanks, is the concentration of any target hit < ½ that analyte's CRQL?	[ ]	___	✓

NOTE: Most labs will report the CRQLs on the Form Is as ½ the required CRQL. If the lab reported the required CRQLs, then check if any detected hits are above ½ times the CRQLs.

6.0 Contamination

NOTE: "Water blanks", "distilled water blanks" and "drilling water blanks" are validated like any other sample and are not used to qualify the data. Do not confuse them with the other QC blanks discussed below.

6.1 Do any method/instrument/reagent/cleanup blanks

YES NO N/A

show positive hits for pest/PCBs? ___ [ ] ✓

Note
water: When applied as directed in the table of 6.2, the contaminant in method/instrument/clean-up blanks is multiplied by the sample dilution factor, where neceseary

soil: 30 grams of sodium sulfate are used to prepare the soil methods blank as instructed on Page D-72/Pest section 12.1.2.3.1. When applied as directed in the in the table 6.2, the contaminant concentration in the method is multiplied the sample dilution factor, where necessary. Contact the laboratory if the soil blanks are not reported in soil units (µg/kg).

6.2 Do any field/rinse blanks have positive pest/PCB results? ___ [✓] ___

ACTION: Prepare a list of the samples associated with each of the contaminated blanks. (Attach a separate sheet)

NOTE: All field blank results associated to a particular group of samples (may exceed one per case or one per day) may be used to qualify data. Do not convert field blank results to account for the difference in soil CRQLs. Blanks may not be qualified because of contamination in another blank. Field blanks must be qualified for surrogate, and/or calibration QC problems.

ACTION: Follow the directions in the table below to qualify TCL results due to contamination. Use the largest value from all the associated blanks.

Flag sample result with a "U":	**Report CRQL & qualify "U":**	**No qualification is needed:**
Sample conc. > CRQL, but < 5x blank.	Sample conc. < CRQL & is < 5x blank value.	Sample conc. > CRQL & > 5x blank value.

NOTE: If gross blank contamination exists, all data in the associated samples should be qualified as "R", unusable.

	YES	NO	N/A
6.3 Are there field/rinse/equipment blanks associated with every sample?	[ ]	___	✓

ACTION: For low level samples, note in the Data Assessment that there is no associated field/rinse/equipment blank. For analytes with high concentrations, use professional judgement to qualify these values and document in the Data Assessment.

Exception: samples taken from a drinking water tap do not have associated field blanks.

7.0 Calibration and GC Performance

	YES	NO	N/A
7.1 Are the following Gas Chromatograms and Data Systems Printouts for both columns present for all samples, blanks and MS/MSD:			
a. Peak resolution check?	[✓]	___	___
b. Performance evaluation mixtures?	[✓]	___	___
c. Aroclor 1016/1260?	[✓]	___	___
d. Aroclors 1221, 1232, 1242, 1248, 1254?	[✓]	___	___
e. Toxaphene?	[✓]	___	___
f. Low points individual mixtures A & B?	[✓]	___	___
g. Med points individual mixtures A & B?	[✓]	___	___
h. High points individual mixtures A & B?	[✓]	___	___
i. Instrument blanks?	[✓]	___	___
j. Were the appropriate GC columns used as specified on pg. D-11/PEST, sections 6.23.3.1 to 6.23.3.7, in the SOW?	[✓]	___	___
7.2 Do the chromatograms for all Individual Standard Mixtures and PEM analyses display single component analytes at > 10% but < 100% of full scale (see sections 9.3.5.8.1 thru 9.3.5.8.4, pages D-32 & 33/PEST)?	[✓]	___	___

	YES	NO	N/A
Have chromatograms for Individual Standard Mixtures and PEM analyses been replotted, showing scaling factor(s), to meet the above requirements when necessary?	[ ]	___	✓

NOTE: All standard chromatograms must clearly display all peaks at > 10% but < 100% of full scale, and replotted if necessary to accommodate peaks not properly scaled in the initial chromatogram(s). Both the initial and replotted chromatograms must be submitted with the data package.

ACTION: If all single component peaks are not clearly displayed on chromatograms for all Individual Standard Mixtures and PEM analyses, call the lab for resubmittal of the necessary data.

7.3 Are Forms VI PEST 1-7 present and complete for each column and each analytical sequence?	[✓]	___	___

ACTION: If no, take action specified in 3.2 above.

7.4 Are there any transcription/ calculation errors between raw data and Forms VI?	___	[✓]	___

ACTION: If large errors exist, call the lab for explanation/resubmittal, make necessary corrections and document in the Data Assessments.

7.5 Do all standard retention times, including each pesticide in each level of Individual Mixtures A & B, fall within the windows established during the Initial Calibration (see Form VI PEST-1)?	[✓]	___	___

ACTION: If no, all samples in the entire analytical sequence are potentially affected. Check to see if the chromatograms contain peaks within an expanded window surrounding the expected retention times. If no peaks are found and the surrogates are visible, non-detects are valid. If peaks are present and cannot be identified through pattern recognition or using a revised RT window, qualify all positive results "JN" and non-detects as unusable "R". For aroclors, the RT may be outside the window, but the aroclor may still be identified from its distinctive pattern.

	YES	NO	N/A
7.6 Are the linearity criteria for the initial analyses of Individual Standards A & B within limits for both columns? (The %RSD for alpha and delta BHC must be < 25.0% all other analytes must be < 20%, except for the two surrogates, which must not exceed a %RSD of 30.0%.)	☑		

NOTE: Contractual requirements allow up to two single component TCL compounds, but not surrogates, on each column to exceed the criteria provided the %RSD is ≤ 30%. (See page D-28/Pest, sec. 9.2.5.7 in the SOW.)

ACTION: If more than two analytes failed %RSD, document in the Data Assessment Contract Problems/Non-Compliance section and Organic Regional Data Assessment Summary form.

ACTION: If no, qualify all associated positive results generated during the entire analytical sequence "J" and all non-detects "UJ". When %RSD > 90%, flag all non-detect results for that analyte "R" (unusable).

7.7 Is the resolution between all adjacent peaks in the Resolution Check Mixture > 60.0% for both columns? (See Form VI PEST-4.)	☑		

ACTION: If no, positive results for compounds that were not adequately resolved should be qualified "J". Use professional judgement to determine if non-detects which elute in areas affected by co-eluting peaks should be qualified "N" as presumptive evidence of presence or unusable, "R".

7.8 Is Form VI PEST-5 present and complete for each Performance Evaluation Mixture (PEM) standard used for <u>both initial and continuing</u> calibrations?	☑		
For each PEM standard, was the resolution between each pair of adjacent peaks > 90.0% on both columns?	☑		

ACTION: If no, take action as specified in section 3.2 above.

	YES	NO	N/A
7.9 Have Forms VI PEST-6 & PEST-7 been completed for all midpoint Individual Standards A and B used for initial calibration?	☑		
For each standard, was the resolution between all adjacent peaks > 90.0% on both columns?	☑		

ACTION: If no, positive results for compounds that were not adequately resolved should be qualified "J". Use professional judgement to determine if non-detects which elute in areas affected by co-eluting peaks should be qualified "N" as presumptive evidence of presence or unusable "R".

7.10 Is Form VII Pest-1 present and complete for each PEM standard analyzed during the analytical sequence for both columns?	☑		
Was the %Breakdown of DDT and Endrin calculated using the equations given on page D-26/PEST, sec. 9.2.4.8 in the SOW?	☑		
Were all pesticides and surrogates in each PEM standard within the RT windows established during the Initial Calibration?	☑		

ACTION: If no, take action as specified in 3.2 above.

7.11 Has the individual percent breakdown for DDT/Endrin exceeded 20.0% in any PEM on either column? (See Form VII PEST-1.)			
- for 4,4'-DDT?		☑	
- for Endrin?		☑	
Has the combined percent breakdown for DDT/Endrin exceeded 30.0% in any PEM on either column (required for all PEM analyses)?		☑	

ACTION: 1. If any percent breakdown has failed the QC criteria in either PEM in steps 2 and 17 in the <u>initial calibration</u> sequence (page D-28/Pest, sec. 9.2.5.6 in the SOW), qualify <u>all samples</u> in the entire analytical sequence as described in sections 2.a, b and c below.

YES NO N/A

2. If any percent breakdown failed the QC criteria in a PEM calibration verification analysis, review data beginning with the samples which followed the last in-control standard until the next acceptable PEM and qualify the data as described below.

a. 4,4'-DDT Breakdown: If DDT breakdown was > 20.0%:

i. Qualify all positive results for DDT with "J". If DDT was not detected, but DDD and DDE are positive, then qualify the quantitation limit for DDT unusable, "R".

ii. Qualify positive results for DDD and/or DDE as presumptively present at an approximated quantity "JN".

b. Endrin Breakdown: If endrin breakdown was > 20.0%:

i. Qualify all positive results for endrin with "J". If endrin was not detected, but endrin aldehyde and endrin ketone are positive, then qualify the quantitation limit for Endrin as unusable "R".

ii. Qualify positive results for endrin ketone and endrin aldehyde as presumptively present at an approximated quantity "JN".

c. Combined Breakdown: If the combined 4,4'-DDT and endrin breakdown is greater than 30.0%:

i. Qualify all positive results for DDT and Endrin with "J". If endrin was not detected, but endrin aldehyde and endrin ketone are positive, then qualify the quantitation limit for endrin as unusable "R". If DDT was not detected, but DDD and DDE are positive, then qualify the quantitation limit for DDT as unusable "R".

ii. Qualify positive results for endrin ketone

YES NO N/A

and endrin aldehyde as presumptively present at an approximated quantity "JN". Qualify positive results for DDD and/or DDE as presumptively present at an approximated quantity "JN".

7.12 Are all percent difference (%D) values for PEM analytes and surrogates on both columns ≥ -25% and ≤ +25.0%? (See Form VII PEST-1.) ☑ ___ ___

ACTION: If no, qualify all associated positive results generated during the analytical sequence "J" and sample quantitation limits "UJ".

NOTE: If the failing PEM is part of the initial calibration, all samples are potentially affected. If the offending standard is a calibration verification, the associated samples are those which followed the last in-control standard until the next passing standard.

7.13 Is Form VII Pest-2 present and complete for each INDA and INDB calibration verification analyzed? ☑ ___ ___

ACTION: If no, take action specified in 3.2 above.

7.14 Are there any transcription/calculation errors between raw data and Form VII Pest-2? ___ ☑ ___

ACTION: If large errors exists, call the lab for explanation/resubmittal, make necessary corrections and document in the Data Assessments under Contract Problems/Non-Compliance and the Organic Regional Data Assessment Summary.

7.15 Do all standard retention times for each INDA and INDB calibration verification fall within the RT windows established during the initial calibration sequence? (See Form VII PEST-2.) ☑ ___ ___

ACTION: If no, beginning with the samples which followed the last in-control standard, check to see if the chromatograms contain peaks within an expanded window surrounding the expected retention times. If no peaks are found and the surrogates are visible, non-detects are valid. If peaks are present and cannot be identified

	YES	NO	N/A
through pattern recognition or using a revised RT window, qualify all positive results and non-detects as unusable "R".			
7.16 Are the %D values for all INDA and INDB calibration verification compounds ≤ 25.0%?	☑		
ACTION: If the %D is > 25.0% for the compound being quantitated, qualify all associated positive results "J" and non-detects "UJ". The "associated samples" are those which followed the last in-control standard up to the next passing standard containing the analyte which failed the criteria. If the %D is > 90%, flag all non-detects for that analyte "R" (unusable).			
8.0 Analytical Sequence Check (Form VIII-PEST)			
8.1 Is Form VIII present and complete for each column and each period of analyses?	☑		
ACTION: If no, take action specified in 3.2 above.			
8.2 Was the proper analytical sequence followed for each initial calibration and subsequent analyses, and all standards analyzed at the required frequency for each GC/EC instrument used.? (See SOW pages D-23 & D-58/PEST.)	☑		
Were all samples analyzed within a 12 hour time period and bracketed by acceptable analyses of the proper standards?	☑		
ACTION: If no, use professional judgement to determine the severity of the effect on the data and qualify accordingly. Generally, the effect is negligible unless the sequence was grossly altered and/or the calibration was out of QC limits.			
8.3 Have all samples been injected within a 12 hr. period beginning with the injection of an Instrument Blank?	☑		
ACTION: If no, use professional judgement to determine the severity of the effect on the data and qualify accordingly.			

	YES	NO	N/A
8.4 If a multi-component analyte was detected in a sample, was a matching multi-component standard analyzed within 72 hours of the injection of the sample and within a valid 12 hour sequence?	[ ]	___	___
ACTION: If no, document in the Data Assessment under Contract Problems/Non-Compliance and on the Organic Regional Data Assessment Summary form.			
9.0 Cleanup Efficiency Verification (Form IX)			
9.1 Is Form IX PEST-1 present and complete for each lot of Florisil Cartridges used? (Florisil Cleanup is required for all Pest/PCB extracts.)	[✓]	___	___
ACTION: If no, take action specified in 3.2 above. If data suggests that florisil cleanup was not performed, document in the Data Assessment under the Contract Non-compliance section.			
9.2 Are all samples listed on the Pesticide Florisil Cartridge Check Form?	[✓]	___	___
ACTION: If no, take action specified in 3.2 above.			
9.3 If GPC Cleanup was performed (mandatory for all soil sample extracts), is Form IX Pest-2 present?	[✓]	___	___
ACTION: If no, take action specified in 3.2 above.			
ACTION: If GPC was not performed when required, document in the Data Assessment under the Contract Problems/Non-Compliance section and Organic Regional Data Assessment Summary.			
9.4 The validator should verify that the correct identification scheme for the EPA Blank samples were used. See page B-35, sec. 3.3.7.8 and 3.3.7.9 of the SOW for further information.			
Was the correct identification scheme used for GPC and Florisil blanks?	[✓]	___	___
9.5 Are percent recoveries (%R) of the pesticide and surrogate compounds, used to check the efficiency of the cleanup procedures, within QC limits, 80 - 120%, for the florisil cartridge check?	[✓]	___	___

	YES	NO	N/A
80 - 110% for GPC calibration?	☑		

ACTION: Qualify only those analytes which failed the recovery criteria as follows:

If %R are < 80%, qualify positive results "J" and quantitation limits "UJ". Non-detects should be qualified "R" if zero %R was obtained for pesticide compounds. Use professional judgement to qualify positive results if recoveries are greater than the upper limit.

NOTE: Sample data should be evaluated for potential interferences if recovery of 2,4,5-trichlorophenol was > 5% in the Florisil Cartridge Performance Check analysis. Document any problems found in the Data Assessment under the Contract Problems/Non-Compliance section.

NOTE: The raw data of the GPC Calibration Check must be evaluated for pattern similarity with previously analyzed Aroclor standards.

10.0 Pesticide/PCB Identification

	YES	NO	N/A
10.1 Is Form X complete for every sample in which a pesticide or PCB was detected?	☑		

ACTION: If no, take action specified in 3.2 above.

	YES	NO	N/A
10.2 Are all sample chromatograms properly scaled, attenuated, etc. as required for proper identification of single and multi-component analytes? (Refer to SOW sections 11.3.7.1 thru 11.3.7.8, page D-70/pest for specific details.)	☑		

NOTE: Proper verification of Pest/PCB results depends on clear, legible presentation of the raw data. Single component pesticides and all peaks chosen for quantitation of multi-component analytes must appear at less than full scale. Toxaphene and PCB patterns must be clearly visible to enable comparison with standard chromatrograms.

ACTION: If retention times or apex of peaks cannot be verified, or if multi-component peak patterns are not discernible, call the lab to obtain rescaled chromatograms.

	YES	NO	N/A
10.3 Are there any transcription/calculation errors between raw data and Forms 10A and 10B?	___	☑	___
ACTION: If large errors exist, call the lab for explanation/resubmittal, make necessary corrections and note errors in the Data Assessment under Contract Problems/Non-Compliance and the Organic Regional Data Assessment Summary.			
10.3 Are RTs of sample compounds within the established RT windows for analyses on both columns?	☑	___	___
Was GC/MS confirmation provided when required (when compound concentration is > 10 ug/ml in final extract)?	☐	___	✓
ACTION: Use professional judgement to qualify positive results which were not confirmed by GC/MS. Qualify as unusable "R" all positive results which were not confirmed by second GC column analysis. Also qualify as unusable "R" all positive results which do not meet RT window criteria, unless associated standard compounds are similarly biased. The reviewer should use professional judgement to assign an appropriate quantitation limit.			
10.4 Is the percent difference (%D) calculated for the positive sample results on both GC columns < 25.0%?	☑	___	___
ACTION: If the reviewer finds neither column shows interference for the positive hits, the data should be flagged as follows:			

% Difference	Qualifier
0 - 25%	None
25 - 70%	"J"
70 - 100%	"JN"
> 100%	"R"
100 - 200% (Interference detected)*	"JN"
> 50% (Pesticide value is < CRQL)**	"U"

* When the reported %D is 100 - 200%, but interference is detected in either column, qualify the data with "J".

YES NO N/A

** When the **reported** pesticide value is lower than the CRQL, and the %D is > 50%, raise the value to the CRQL and qualify "U", undetected.

NOTE: For Aroclors, if the %D is > 50%, but the pattern of GC peaks on both columns indicates a specific Aroclor is present, qualify that Aroclor "J".

NOTE: The lower of the two values is reported on Form I. If using professional judgement, the reviewer determines that the higher result was more acceptable, the reviewer should replace the value and indicate the reason for the change in the Data Assessment.

10.5 Check chromatograms for false negatives, especially the multiple peak compounds (toxaphene and the PCBs). Were there any false negatives? ___ ☑ ___

ACTION: Use professional judgement to decide if the compound should be reported. If the appropriate PCB standards were not analyzed, qualify the data unusable "R".

11.0 Target Compound List (TCL) Analytes

11.1 Are the Organic Analysis Data Sheets (Form I Pest) present with required header information on each page, for each of the following:

a. Samples and/or fractions as appropriate? ☑ ___ ___

b. Matrix spikes and matrix spike duplicates? ☑ ___ ___

c. Blanks? ☑ ___ ___

d. Instrument Blanks (per column & analysis)? ☑ ___ ___

11.2 Are the Pest chromatograms and quant. reports included in the sample data package for each of the following:

a. Samples and/or fractions as appropriate? ☑ ___ ___

b. Matrix spikes and matrix spike duplicates? ☑ ___ ___

c. Blanks? ☑ ___ ___

	YES	NO	N/A
d. Instrument Blanks (per column & analysis)?	☑		

ACTION: If any data are missing, take action specified in 3.2 above.

11.3 Are the response factors shown in the Quant Report?	☑		
11.4 Is chromatographic performance acceptable with respect to:			
a. Baseline stability?	☑		
b. Resolution?	☑		
c. Peak shape?	☑		
d. Full-scale graph (attenuation)?	☑		
e. Other: _____	☐		
11.5 Were any electropositive displacement (negative peaks) or unusual peaks seen?		☑	

ACTION: Use professional judgement to determine the acceptability of the data. Address comments under System Performance section of the Data Assessment.

12.0 Compound Quantitation and Reported Detection Limits

12.1 Are there any transcription/calculation errors in Form I results? (Check at least two positive values.)		☑	

NOTE: Single-peak pesticide results can be checked for rough agreement between quantitative results obtained on the two GC columns. The reviewer should use professional judgement to decide whether much larger concentration obtained on one column versus the other indicates the presence of an interfering compound. If an interfering compound is indicated, the lower of the two values should be reported and qualified as presumptively present at an approximated quantity "JN". This necessitates a determination of an estimated concentration on the confirmation

1D

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

C-D #9DL

Lab Name: CHEMTECH CONSULTING GROUP Contract: 68D20041

Lab Code: CHEM Case No.: 9703 SAS No.: SDG No.: 4754CLP

Matrix: (soil/water) SOIL Lab Sample ID: 25297D

Sample wt/vol: 30.0 (g/ml) G Lab File ID: _____

% Moisture: 4 decanted: (Y/N) N Date received: 08/04/97

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 08/04/97

Concentrated Extract Volume: 5000 (uL) Date analyzed: 08/08/97

Injection Volume: 1.0 (uL) Dilution Factor: 1000.0

GPC Cleanup: (Y/N) Y pH: Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/Kg	Q
319-84-6	alpha-BHC	1700	U
319-85-7	beta-BHC	1700	U
319-86-8	delta-BHC	1700	U
58-89-9	gamma-BHC (Lindane)	1700	U
76-44-8	Heptachlor	1700	U
309-00-2	Aldrin	1700	U
1024-57-3	Heptachlor epoxide	1700	U
959-98-8	Endosulfan I	1700	U
60-57-1	Dieldrin	3500	U
72-55-9	4,4'-DDE	3500	U
72-20-8	Endrin	3500	U
33213-65-9	Endosulfan II	3500	U
72-54-8	4,4'-DDD	3500	U
1031-07-8	Endosulfan sulfate	3500	U
50-29-3	4,4'-DDT	3500	U
72-43-5	Methoxychlor	17000	U
53494-70-5	Endrin ketone	3500	U
7421-36-3	Endrin aldehyde	3500	U
5103-71-9	alpha-Chlordane	1700	U
5103-74-2	gamma-Chlordane	1700	U
8001-35-2	Toxaphene	170000	U
12674-11-2	Aroclor-1016	35000	U
11104-28-2	Aroclor-1221	69000	U
11141-16-5	Aroclor-1232	35000	U
53469-21-9	Aroclor-1242	35000	U
12672-29-6	Aroclor-1248	35000	U
11097-69-1	Aroclor-1254	140000	~~DB~~ comp 8/19
11096-82-5	Aroclor-1260	35000	U

1D

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

C-D# 10DL

Lab Name: CHEMTECH CONSULTING GROUP Contract: 68D20041

Lab Code: CHEM Case No.: 9703 SAS No.: SDG No.: 4754CLP

Matrix: (soil/water) SOIL Lab Sample ID: 25298D

Sample wt/vol: 30.0 (g/ml) G Lab File ID: _____

% Moisture: 3 decanted: (Y/N) N Date received: 08/04/97

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 08/04/97

Concentrated Extract Volume: 5000 (uL) Date analyzed: 08/08/97

Injection Volume: 1.0 (uL) Dilution Factor: 1000.0

GPC Cleanup: (Y/N) Y pH: Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/Kg	Q
319-84-6	alpha-BHC	1700	U
319-85-7	beta-BHC	1700	U
319-86-8	delta-BHC	1700	U
58-89-9	gamma-BHC (Lindane)	1700	U
76-44-8	Heptachlor	1700	U
309-00-2	Aldrin	1700	U
1024-57-3	Heptachlor epoxide	1700	U
959-98-8	Endosulfan I	1700	U
60-57-1	Dieldrin	3400	U
72-55-9	4,4'-DDE	3400	U
72-20-8	Endrin	3400	U
33213-65-9	Endosulfan II	3400	U
72-54-8	4,4'-DDD	3400	U
1031-07-8	Endosulfan sulfate	3400	U
50-29-3	4,4'-DDT	3400	U
72-43-5	Methoxychlor	17000	U
53494-70-5	Endrin ketone	3400	U
7421-36-3	Endrin aldehyde	3400	U
5103-71-9	alpha-Chlordane	1700	U
5103-74-2	gamma-Chlordane	1700	U
8001-35-2	Toxaphene	170000	U
12674-11-2	Aroclor-1016	34000	U
11104-28-2	Aroclor-1221	69000	U
11141-16-5	Aroclor-1232	34000	U
53469-21-9	Aroclor-1242	34000	U
12672-29-6	Aroclor-1248	34000	U
11097-69-1	Aroclor-1254	170000	~~DB~~
11096-82-5	Aroclor-1260	34000	U

comp 8/11/97

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

C-D #11DL

Lab Name: CHEMTECH CONSULTING GROUP Contract: 68D20041

Lab Code: CHEM Case No.: 9703 SAS No.: SDG No.: 4754CLP

Matrix: (soil/water) SOIL Lab Sample ID: 25301D

Sample wt/vol: 30.0 (g/ml) G Lab File ID: _____

% Moisture: 18 decanted: (Y/N) N Date received: 08/04/97

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 08/04/97

Concentrated Extract Volume: 5000 (uL) Date analyzed: 08/08/97

Injection Volume: 1.0 (uL) Dilution Factor: 1000.0

GPC Cleanup: (Y/N) Y pH: Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/Kg	Q
319-84-6	alpha-BHC	2000	U
319-85-7	beta-BHC	2000	U
319-86-8	delta-BHC	2000	U
58-89-9	gamma-BHC (Lindane)	2000	U
76-44-8	Heptachlor	2000	U
309-00-2	Aldrin	2000	U
1024-57-3	Heptachlor epoxide	2000	U
959-98-8	Endosulfan I	2000	U
60-57-1	Dieldrin	4100	U
72-55-9	4,4'-DDE	4100	U
72-20-8	Endrin	4100	U
33213-65-9	Endosulfan II	4100	U
72-54-8	4,4'-DDD	4100	U
1031-07-8	Endosulfan sulfate	4100	U
50-29-3	4,4'-DDT	4100	U
72-43-5	Methoxychlor	20000	U
53494-70-5	Endrin ketone	4100	U
7421-36-3	Endrin aldehyde	4100	U
5103-71-9	alpha-Chlordane	2000	U
5103-74-2	gamma-Chlordane	2000	U
8001-35-2	Toxaphene	200000	U
12674-11-2	Aroclor-1016	41000	U
11104-28-2	Aroclor-1221	81000	U
11141-16-5	Aroclor-1232	41000	U
53469-21-9	Aroclor-1242	41000	U
12672-29-6	Aroclor-1248	41000	U
11097-69-1	Aroclor-1254	160000	~~DB~~ 8/19/97C
11096-82-5	Aroclor-1260	41000	U

1D

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

C-D#12DL

Lab Name: CHEMTECH CONSULTING GROUP Contract: 68D20041

Lab Code: CHEM Case No.: 9703 SAS No.: SDG No.: 4754CLP

Matrix: (soil/water) SOIL Lab Sample ID: 25302D

Sample wt/vol: 30.0 (g/ml) G Lab File ID: _____

% Moisture: 6 decanted: (Y/N) N Date received: 08/04/97

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 08/04/97

Concentrated Extract Volume: 5000 (uL) Date analyzed: 08/08/97

Injection Volume: 1.0 (uL) Dilution Factor: 500.0

GPC Cleanup: (Y/N) Y pH: Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/Kg	Q
319-84-6	alpha-BHC	890	U
319-85-7	beta-BHC	890	U
319-86-8	delta-BHC	890	U
58-89-9	gamma-BHC (Lindane)	890	U
76-44-8	Heptachlor	890	U
309-00-2	Aldrin	890	U
1024-57-3	Heptachlor epoxide	890	U
959-98-8	Endosulfan I	890	U
60-57-1	Dieldrin	1800	U
72-55-9	4,4'-DDE	1800	U
72-20-8	Endrin	1800	U
33213-65-9	Endosulfan II	1800	U
72-54-8	4,4'-DDD	1800	U
1031-07-8	Endosulfan sulfate	1800	U
50-29-3	4,4'-DDT	1800	U
72-43-5	Methoxychlor	8900	U
53494-70-5	Endrin ketone	1800	U
7421-36-3	Endrin aldehyde	1800	U
5103-71-9	alpha-Chlordane	890	U
5103-74-2	gamma-Chlordane	890	U
8001-35-2	Toxaphene	89000	U
12674-11-2	Aroclor-1016	18000	U
11104-28-2	Aroclor-1221	35000	U
11141-16-5	Aroclor-1232	18000	U
53469-21-9	Aroclor-1242	18000	U
12672-29-6	Aroclor-1248	18000	U
11097-69-1	Aroclor-1254	62000	~~DB~~ cmp 8/19/1
11096-82-5	Aroclor-1260	18000	U

1D

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

C-D#13DL

Lab Name: CHEMTECH CONSULTING GROUP Contract: 68D20041

Lab Code: CHEM Case No.: 9703 SAS No.: SDG No.: 4754CLP

Matrix: (soil/water) SOIL Lab Sample ID: 25303D

Sample wt/vol: 30.0 (g/ml) G Lab File ID: _____

% Moisture: 10 decanted: (Y/N) N Date received: 08/04/97

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 08/04/97

Concentrated Extract Volume: 5000 (uL) Date analyzed: 08/08/97

Injection Volume: 1.0 (uL) Dilution Factor: 10.0

GPC Cleanup: (Y/N) Y pH: Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/Kg	Q
319-84-6	alpha-BHC	19	U
319-85-7	beta-BHC	19	U
319-86-8	delta-BHC	19	U
58-89-9	gamma-BHC (Lindane)	19	U
76-44-8	Heptachlor	19	U
309-00-2	Aldrin	19	U
1024-57-3	Heptachlor epoxide	19	U
959-98-8	Endosulfan I	19	U
60-57-1	Dieldrin	37	U
72-55-9	4,4'-DDE	37	U
72-20-8	Endrin	37	U
33213-65-9	Endosulfan II	37	U
72-54-8	4,4'-DDD	37	U
1031-07-8	Endosulfan sulfate	37	U
50-29-3	4,4'-DDT	37	U
72-43-5	Methoxychlor	190	U
53494-70-5	Endrin ketone	37	U
7421-36-3	Endrin aldehyde	37	U
5103-71-9	alpha-Chlordane	19	U
5103-74-2	gamma-Chlordane	19	U
8001-35-2	Toxaphene	1900	U
12674-11-2	Aroclor-1016	370	U
11104-28-2	Aroclor-1221	740	U
11141-16-5	Aroclor-1232	370	U
53469-21-9	Aroclor-1242	370	U
12672-29-6	Aroclor-1248	370	U
11097-69-1	Aroclor-1254	2300	~~DE~~
11096-82-5	Aroclor-1260	370	U

8/19/97 cr

2F

SOIL PESTICIDE SURROGATE RECOVERY

Lab Name: CHEMTECH CONSULTING GROUP Contract: 68D20041

Lab Code: CHEM Case No.: 9703 SAS No.: SDG No.: 4754CLP

GC Column(1): RTX1701 ID: 0.53 (mm) GC Column(2): RTX5 ID: 0.53 (mm)

	EPA SAMPLE NO.	TCX 1 %REC #	TCX 2 %REC #	DCB 1 %REC #	DCB 2 %REC #	OTHER (1)	OTHER (2)	TOT OUT
01	PBLK01	64	72	66	60			0
02	BLK.SPIKE	63	65	70	76			0
03	BLK.SPK	71	69	75	67			0
04	C-D #1DL	D	D	D	D			0
05	C-D #3DL	D	D	146	194*			1
06	C-D#4DL	D	D	D	D			0
07	C-D #5DL	D	D	112	299*			1
08	C-D#12DL	188*	D	311*	D			2
09	C-D#13DL	61	81	74	97			0
10	C-D #2DL	D	D	630*	1908*			2
11	C-D #6DL	D	D	D	D			0
12	C-D #7DL	D	D	D	D			0
13	C-D#8DL	D	D	D	D			0
14	C-D #9DL	D	D	D	D			0
15	C-D# 10DL	D	D	D	D			0
16	C-D #11DL	D	D	D	D			0
17								
18								
19								
20								
21								
22								
23								
24								
25								
26								
27								
28								
29								
30								

	ADVISORY QC LIMITS
TCX = Tetrachloro-m-xylene	(60-150)
DCB = Decachlorobiphenyl	(60-150)

Column used to flag retention time values with an asterisk.
* Values outside of QC limits.
D Surrogate diluted out

1D

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BLK.SPIKE

Lab Name: CHEMTECH CONSULTING GROUP Contract: 68D20041

Lab Code: CHEM Case No.: 9703 SAS No.: SDG No.: 4754CLP

Matrix: (soil/water) SOIL Lab Sample ID: BLKSPK1

Sample wt/vol: 30.0 (g/ml) G Lab File ID: _____

% Moisture: 0 decanted: (Y/N) N Date received: 08/04/97

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 08/04/97

Concentrated Extract Volume: 5000 (uL) Date analyzed: 08/07/97

Injection Volume: 1.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/Kg	Q
319-84-6	alpha-BHC	1.7	U
319-85-7	beta-BHC	1.7	U
319-86-8	delta-BHC	1.7	U
58-89-9	gamma-BHC (Lindane)	1.7	U
76-44-8	Heptachlor	1.7	U
309-00-2	Aldrin	1.7	U
1024-57-3	Heptachlor epoxide	1.7	U
959-98-8	Endosulfan I	1.7	U
60-57-1	Dieldrin	3.3	U
72-55-9	4,4'-DDE	3.3	U
72-20-8	Endrin	3.3	U
33213-65-9	Endosulfan II	3.3	U
72-54-8	4,4'-DDD	3.3	U
1031-07-8	Endosulfan sulfate	3.3	U
50-29-3	4,4'-DDT	3.3	U
72-43-5	Methoxychlor	17	U
53494-70-5	Endrin ketone	3.3	U
7421-36-3	Endrin aldehyde	3.3	U
5103-71-9	alpha-Chlordane	1.7	U
5103-74-2	gamma-Chlordane	1.7	U
8001-35-2	Toxaphene	170	U
12674-11-2	Aroclor-1016	1.3	~~JPB~~ J
11104-28-2	Aroclor-1221	67	U
11141-16-5	Aroclor-1232	33	U
53469-21-9	Aroclor-1242	33	U
12672-29-6	Aroclor-1248	33	U
11097-69-1	Aroclor-1254	33	U
11096-82-5	Aroclor-1260	52	(B)

BJR 8-26-97

1D

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BLK.SPK

Lab Name: CHEMTECH CONSULTING GROUP Contract: 68D20041

Lab Code: CHEM Case No.: 9703 SAS No.: SDG No.: 4754CLP

Matrix: (soil/water) SOIL Lab Sample ID: BLKSPK2

Sample wt/vol: 30.0 (g/ml) G Lab File ID: _____

% Moisture: 0 decanted: (Y/N) N Date received: 08/04/97

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 08/04/97

Concentrated Extract Volume: 5000 (uL) Date analyzed: 08/08/97

Injection Volume: 1.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/Kg	Q
319-84-6	alpha-BHC	1.7	U
319-85-7	beta-BHC	1.7	U
319-86-8	delta-BHC	1.7	U
58-89-9	gamma-BHC (Lindane)	1.7	U
76-44-8	Heptachlor	1.7	U
309-00-2	Aldrin	1.7	U
1024-57-3	Heptachlor epoxide	1.7	U
959-98-8	Endosulfan I	1.7	U
60-57-1	Dieldrin	3.3	U
72-55-9	4,4'-DDE	3.3	U
72-20-8	Endrin	3.3	U
33213-65-9	Endosulfan II	3.3	U
72-54-8	4,4'-DDD	3.3	U
1031-07-8	Endosulfan sulfate	3.3	U
50-29-3	4,4'-DDT	3.3	U
72-43-5	Methoxychlor	17	U
53494-70-5	Endrin ketone	3.3	U
7421-36-3	Endrin aldehyde	3.3	U
5103-71-9	alpha-Chlordane	1.7	U
5103-74-2	gamma-Chlordane	1.7	U
8001-35-2	Toxaphene	170	U
12674-11-2	Aroclor-1016	1.3	JPB
11104-28-2	Aroclor-1221	67	U
11141-16-5	Aroclor-1232	33	U
53469-21-9	Aroclor-1242	33	U
12672-29-6	Aroclor-1248	33	U
11097-69-1	Aroclor-1254	33	U
11096-82-5	Aroclor-1260	52	B

PJR 8-25-97

DEFINITIONS

DEFINITIONS

Acronyms

BFB - bromofluorobenzene
BHC - benzene hexachloride
BNA - base neutral acid
CCS - contract compliance screening
CLASS - Contract Laboratory Analytical Services Support
CLP - Contract Laboratory Program
CRQL - Contract Required Quantitation Limit
%D - percent difference
DCB -decachlorobiphenyl
DDD - dichlorodiphenyldichloroethane
DDE - dichlorodiphenylethane
DDT - dichlorodiphenyltrichloroethane
GC - gas chromatography
GC/EC - gas chromatograph/electron capture detector
GC/MS - gas chromatograph/mass spectrometer
GPC - gel permeation chromatography
IS - internal standard
kg - kilogram
µg - microgram
MAGIC - Mainframe Access Graphical Interface with CARD
MS - matrix spike
MSD - matrix spike duplicate
ℓ - liter
mℓ - mililiter
PCB - polychlorinated biphenyl
PE - performance evaluation
PEM - Performance Evaluation Mixture
QC - quality control
RAS - Routine Analytical Services
RIC - reconstructed ion chromatogram
RPD - relative percent difference
RRF - relative response factor
RRF - average relative response factor (from initial calibration)
RRT - relative retention time
RSD - relative standard deviation
RT - retention time
RSCC - Regional Sample Control Center
SDG - sample delivery group
SMC - system monitoring compound
SOP - standard operating procedure
SOW - Statement of Work
SVOA - semivolatile organic analysis
TCL - Target Compound List
TCLP - Toxicity Characteristics Leachate Procedure
TCX -tetrachloro-m-xylene
TIC - tentatively identified compound